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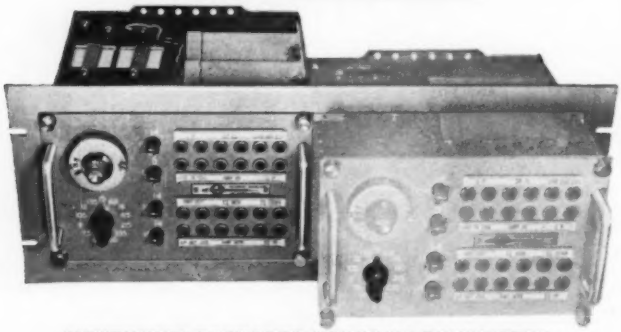

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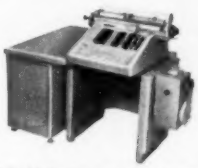

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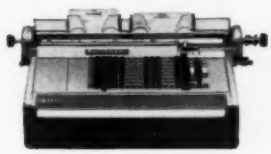

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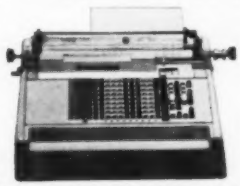

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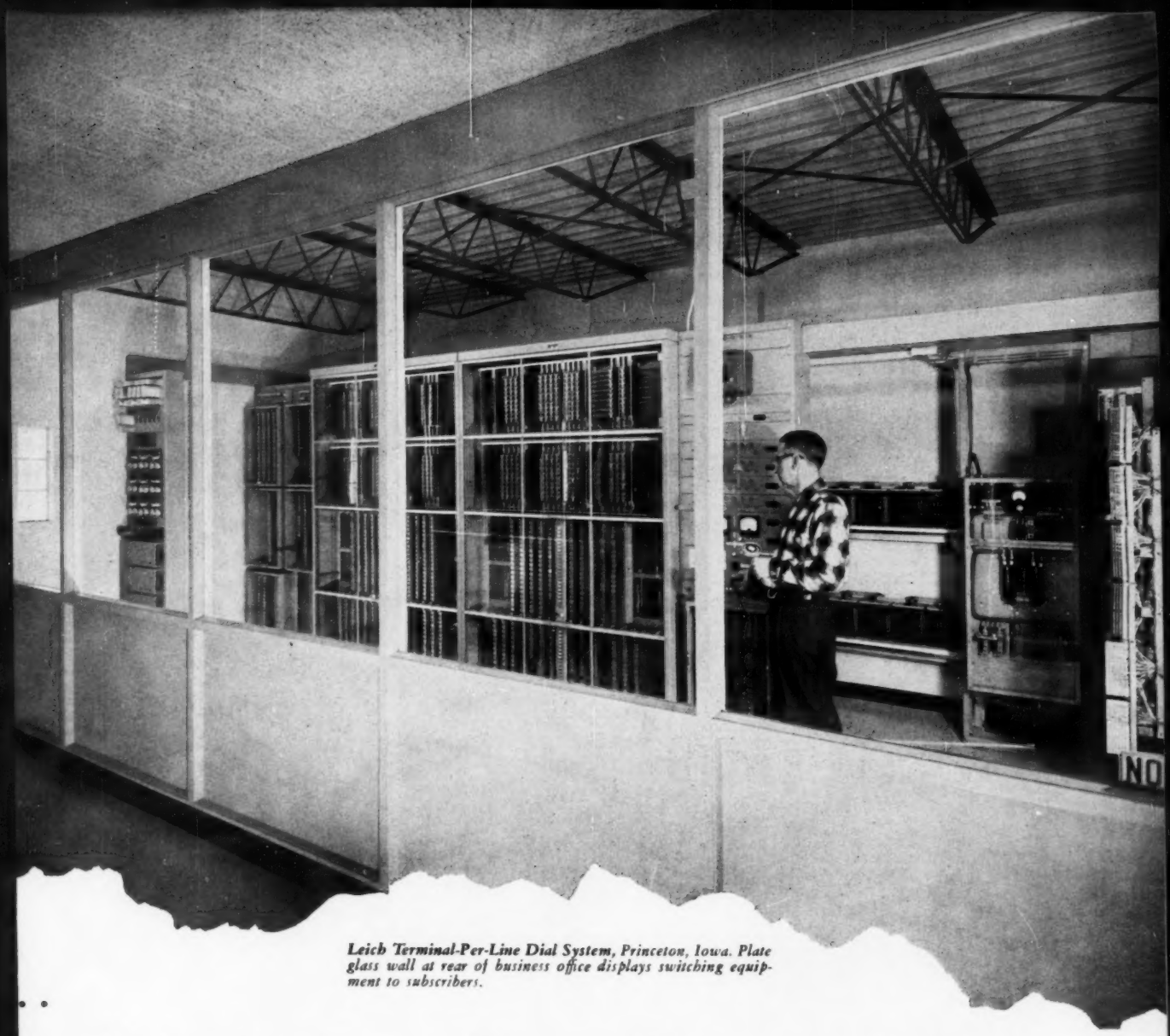

Leich Terminal-Per-Line Dial System, Princeton, Iowa. Plate glass wall at rear of business office displays switching equipment to subscribers.

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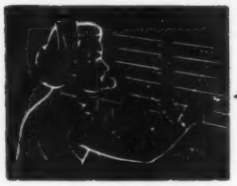

FLASHES AND PLUGS

NUMBERS ARE UP! Telephone, that is.

Illinois Bell says it's looking ahead service-wise, as far as 2,000 A.D., which is why ANC (All Numeral Calling) is turning up more and more.

A Chicago quipster who grew up with certain familiar exchange names, says he's going to miss singing the scales when the company drops DO-rchester, FA-irfax, SO-uth Shore, LA-fayette, TI-lden, and DO-wners Grove.

An Iowa woman, reports the *Northwestern Bell*, has devised a key for remembering her new all-number telephone number. She thinks of two guns, and a large can of fruit cocktail, or: 32-38-303.

There is bound to be a little confusion, of course. At Bowling Green (O.) State University, the economics department's extension is 431. A local pizzeria, widely patronized by students, has number 4315. To get "off campus," students must dial "8" first, get dial tone, then dial the 4-digit number. But—they aren't doing it that way, and the economics department is getting lots of pizza requests.

Now that letters are going, and numbers are up, a California booster doesn't understand why Los Angeles never had a SU-nshine or an OR-ange, though it does have a CI-trus.

Much to be lamented, he thinks, is the passing of such delightfully imaginative combinations as DA-venport, SP-ring, and TR-iangle, but—he grins slyly, do you realize that certain numbers on the good old dial spell "s-w-e-e-t-i-e," and that "7-5-2-9-2-6-9" spells "p-l-a-y-b-o-y"?

•

A TISKET . . . A TASKET . . . A TALKING CASKET! The *Northwestern Bell* reports the case of a St. Paul, Minn. woman who likes getting a suntan in a foil-lined coffin crate.

The enterprising lady got the "pine box" from a funeral home, equipped it with pillows, books (titles range from *Beyond my Worth to Comfort of the Damned)* and a telephone. Her special beauty couch offers comfortable privacy, shelter from the wind—and the opportunity to chat with a lady friend across town, stretched out in a similar telephone-equipped crate.

We expect that every once-in-a-while these women find it pleasant to take a coffin break.

•

TELEPHONE TRIUMPH. A 13-year-old Ashland, Ky., student won the local school spelling contest in a breeze, in fact he literally won it "lying down," according to the Illinois Bell Telephone Co. *News.*

While a school official sat at his side, the champion received the words and spelled them over the telephone. It was necessary to do it that way for the youth was in bed with the mumps.

CHANGE OF ADDRESS

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Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
Since 1901

July 30, 1960

CONTENTS

IN THE NATION'S CAPITAL 15
By Francis X. Welch

ANNUAL REVIEW OF NEW PRODUCTS AND TECHNIQUES, PART 8 17
By Ray Blain

IT'S TIME FOR MORE ADEQUATE EARNINGS, NEW YORKERS TOLD 20
By Dan S. Fargo

TELEPHONY'S ELECTRONICS SECTION 23
By Paul E. Murphy

THE PLANT MAN'S NOTEBOOK 30
By Ray Blain

COURTS AND COMMISSIONS 31

NEWS ON NEW PRODUCTS 36

H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Managing Editor* • DIANNE P. DRUCKER, *Associate Editor* • HELEN HARDIN, *Associate Editor* • FRANCIS X. WELCH, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • PAUL E. MURPHY, *Electronics Editor* • MAYME WORKMAN, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager.*

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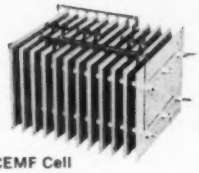
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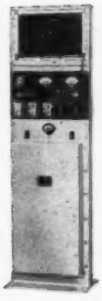
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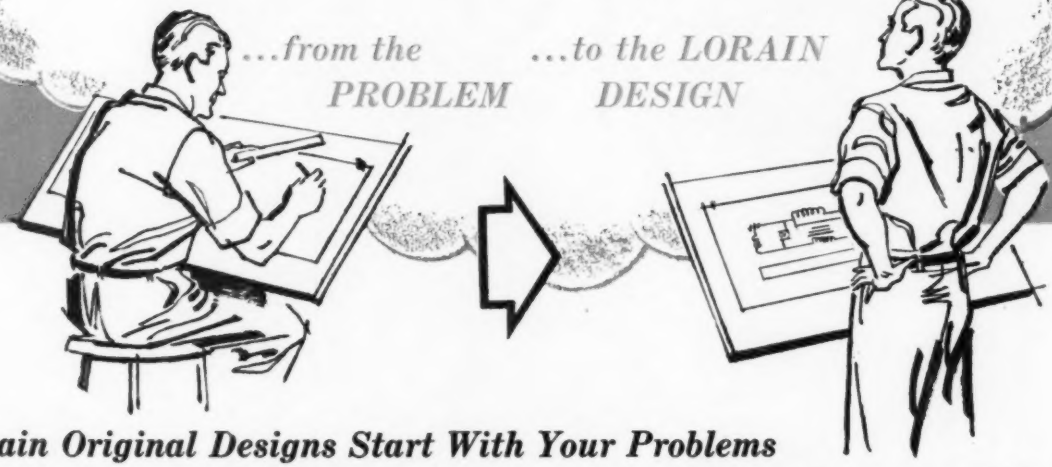

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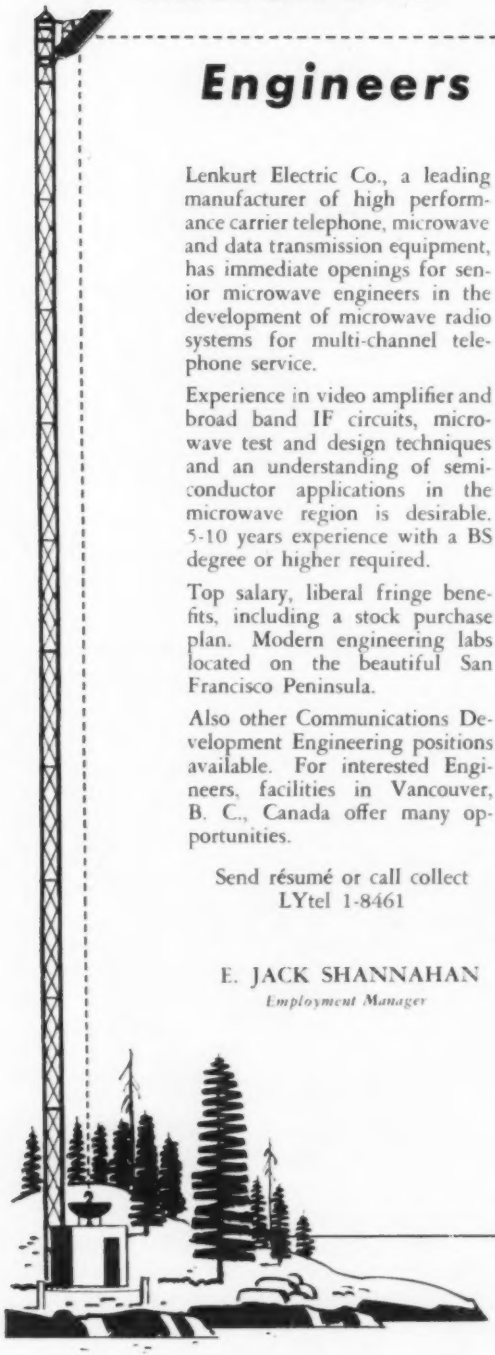

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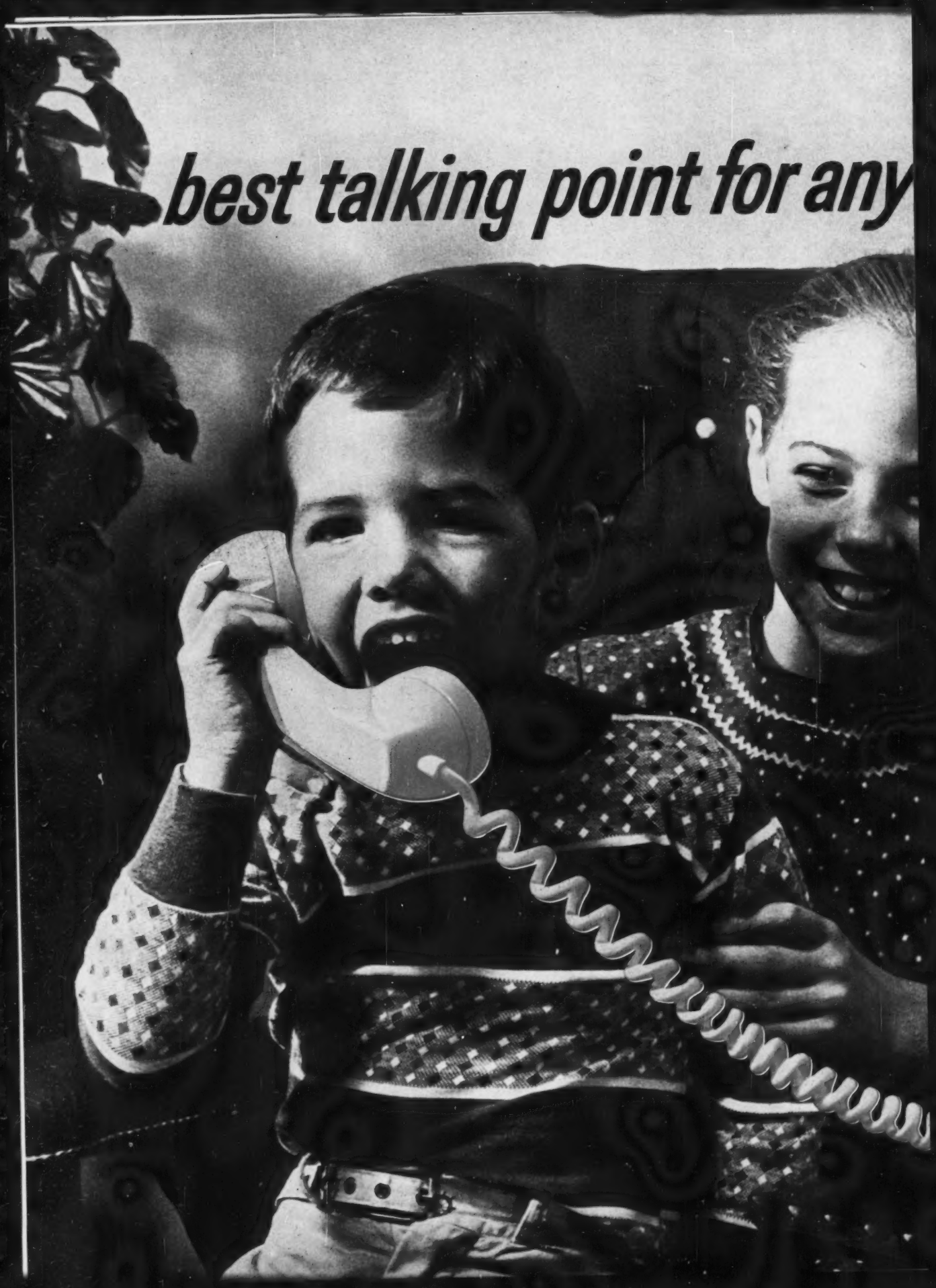
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IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR
AND EDITOR, PUBLIC UTILITIES FORTNIGHTLY

Reorganization of Indiana and Vermont commissions studied. AT&T plans to sell $250 million of debenture bonds. Politics enters into FCC appointment. Telephones installed on Trailways buses. Oregon practices tax discrimination against utilities.

IT WAS BOUND to happen. After more than two and a half years of sensational disclosures about irregularities of federal regulatory commissions, a certain restlessness on this subject has broken out on the state level. If the man on Main Street (as distinguished from the man on Pennsylvania Avenue or on Wall Street) feels that the federal regulatory commissions could stand some improvement, it is only natural that he is going to take a long, hard look at the shape of things around his state capital building. Such repercussions from the federal to state levels are almost inevitable.

One recent criticism and reform proposal along this line was made to the Indiana state legislative study committee. This came from Indiana Public Counselor George L. Diven, who has made some concrete proposals for changes in the organization of the Indiana Public Service Commission.

Diven urges that the duties of the three Indiana commissioners be confined to hearing cases and handing down decisions. Diven earlier successfully fought for separation of his office from direct control of the commission. In a report to a state legislative study committee, he now proposes that the 1961 state legislature set up an administrative division which would handle the actual running of the utility regulation department. He would have the law specify that at least one commissioner must preside at all hearings and that evidence should be reviewed by the full commission before any decision is reached. He said the majority of cases presently are handled by hearing examiners.

"The commission," he declared, "cannot act properly as both judge and prosecutor. It now controls the technical staff which investigates the petitions for rate increases and therefore prepares the case it is expected to decide impartially."

The Indiana public counselor said his proposed amendments to the law would limit the commission's decisions to the evidence introduced at the hearing, making it impossible for the commission to seek additional data to support a conclusion it desires to reach. Under Diven's plan, the administrative division would be required to turn over its evidence to the public interest in all rate cases. To do this, he said his office should receive the reports of commission engineers, auditors, and accountants before a case reaches a hearing.

Up in Vermont, the state commission arranged for its own ordeal of criticism by calling in a firm of Chicago experts, Public Administration Service, to recommend a major reorganization of the commission. The Chicago experts undertook such a study last March at the request of the Vermont Public Service Commission chairman, Charles R. Ross. The Chicago consultants recommended a "gradual revision" of Vermont statutes affecting powers and operations of the commission.

They said a review of state laws showed a "patchwork pattern" indicating need for revision "with a view to the consolidation, simplification, and clarification" of many of the laws. The consultants also said the agency was "seriously understaffed" and additional duties imposed on the commission in its development role of bringing St. Lawrence power to the state have "distorted the organizational relationships in the commission's technical division and cut deeply into the time" of the staff. They pointed out that some 300 service complaints could only be briefly checked.

It is noteworthy that the Democratic Party in its recently adopted national platform for the 1960 presidential campaign did not bear down too hard on the issue of federal regulatory commissions. Considering all the sensational "exposures" which have been going on in Washington before the Harris Sub-committee on Legislative Oversight, the federal regulatory commissions must have offered a tempting target to the platform drafters.

But they probably had a second thought, to the effect that all of the federal regulatory commissions are Democratic as well as Republican in membership. In any event, the Democratic platform proposals for "reform" followed a rather general pattern, already suggested in Representative Harris' bill now before the House of Representatives. This would, in effect, outlaw "ex parte" contacts and the acceptance by commissioners (or their staff) of gifts or favors. There really is not much argument, regardless of party, about the desirability of such reforms, subject to reasonable and practical enforcement.

The text of the plank in the Democratic plaform on regulatory agencies, is as follows:

"The Democratic Party promises to

clean up the federal regulatory agencies. The acceptance by Republican appointees to these agencies of gifts, hospitality, and bribes from interests under their jurisdiction has been a particularly flagrant abuse of public trust.

"We shall bring all contacts with commissioners into the open, and will protect them from any form of improper pressure.

"We shall appoint to these agencies men of ability and independent judgment who understand that their function is to regulate these industries in the public interest.

"We promise a thorough review of existing agency practices, with an eye toward speedier decisions, and a clearer definition of what constitutes the public interest.

"The Democratic Party condemns the usurpation by the Executive of the powers and functions of any of the independent agencies and pledges the restoration of the independence of such agencies and the protection of their integrity of action."

The foregoing platform language about "Republican appointees" who have accepted gifts, etc., must be considered in the light of the fact that there could not have been any other kind of federal appointee for the past seven and a half years. But, by way of balance, we might bear in mind that the most serious charge of this kind involved a Democrat. We will just have to get used to such partisan quibbling for the next three months or so.

Ma Bell's New Bond Issue

On the heels of the news that the American Telephone & Telegraph Co. plans to build a third transatlantic cable, doubling capacity of the present system, comes the word that AT&T plans to sell 250 million dollars of debenture bonds, at competitive bidding on Oct. 25. After all, these things cost money—the transatlantic cable, that is. Wall Street had been expecting for some time that Ma Bell would be around again, pretty soon, gathering in the sheaves.

The transatlantic cable to Great Britain is estimated to cost only 35 million dollars and is scheduled for completion by 1963. But the cable is only one of quite a few items of Bell plant expansion and improvement for which the system will need more money.

The 250 million dollar debenture issue is larger than any other private company security issue at competitive bidding. It is matched only by the Bell System's own previous four similar convertible debenture issues since the end of World War II. Other industrial concerns have occasionally floated larger single issues—but not at competitive bidding. General Motors, United States Steel, and the General Electric Co. have all gone for 300 million dollar bond issues. These were floated by way of negotiations with underwriters—not by competitive bids.

But as already stated, the latest AT&T debenture proposal had been expected among the Wall Street *cognoscenti*. With the constant demands for new construction of the fast growing Bell System, New York money men knew it was only a question of time before the system would have to raise new money in the security market. This year, for example, the Bell System is spending 2.6 billion dollars for plant expansion and improvement as compared with a little over 2.2 billion dollars in 1959. Since World War II, the Bell System has had to spend approximately 21 billion dollars. AT&T has raised more than 6 billion dollars on its own debt securities and more than 3 billion dollars through sale of debt issues by affiliated companies in the Bell System.

Political Complexion of the FCC

It was related in this department last week that President Eisenhower had filled the vacancy on the FCC left by the resignation of former Chairman John C. Doerfer. As then stated, the appointment went to Charles H. King of Grosse Pointe, Mich., who for some years, has been dean of the Detroit College of Law and active in Republican politics in Michigan. The question is now raised whether King, whose name had previously been submitted to the Senate for confirmation as a regular appointment to the FCC, will be confirmed. The answer seems to be "yes," but not because of any bipartisan enthusiasm for President Eisenhower's appointment.

This is not to reflect in any way on the new commissioner, King, a man of obvious superb qualifications in every respect. The observation has solely to do with practical politics. The fact is that the unexpired term of John C. Doerfer will last only until June 30, 1961. That being the case, there would not be much point in the Democrats opposing the King appointment.

Here is the way the political situation on the FCC shapes up. The King appointment re-establishes the 4-to-3 Republican majority on the commission. Commissioner King's original appoint-

(Continued on page 45)

REA Approves Three Loans

Three telephone loans were approved during the week of July 11 by the Rural Electrification Administration as follows:

Bald Knob (Ark.) Telephone Co.; $104,000, July 11.

These funds will help to finance initial service for 202 subscribers and to improve service for 18 subscribers. A new dial central office will be constructed at Pleasant Plains.

On completion of the facilities being provided with the aid of this and a prior REA loan, the borrower will be providing new and improved service to 1,070 subscribers through two exchanges. Approximately 700 subscribers now receive dial service through the Bald Knob central office.

•

Wayne Telephone Co., Odum, Ga.; $52,000; July 11.

This loan will assist in providing initial service to 147 subscribers. On completion of the system which is being built with the help of this and prior REA loans, the borrower will be furnishing new and improved service to 687 subscribers. The system will consist of the Odum and Screven exchanges, which are now providing dial service to approximately 525 of the subscribers.

•

Millington (Tenn.) Telephone Co.; $296,000; July 11.

With the aid of this loan, the company plans to improve service for 213 subscribers and to furnish initial service to 184 subscribers. The existing subscribers are now receiving magneto service from the Rosemark Telephone Co. which the borrower has recently acquired. Provision is made in the loan to reimburse the borrower for this acquisition.

New construction planned to serve the expanded portion of the system includes a dial central office at Rosemark. A portion of these funds will be used to complete the authorized system.

This and prior REA loans will help to enable the borrower to furnish new and improved service to 5,387 subscribers. Four of the five proposed exchanges now provide dial service to approximately 3,400 of the subscribers.

Annual Review of

NEW PRODUCTS AND TECHNIQUES

By RAY BLAIN

THIS IS THE eighth article in a series describing various new items of equipment and their application in telephony.

The seventh article appeared in the July 23 issue.

Readers desiring additional information on any of the products described, should write the manufacturer or TELEPHONY.

* * *

Telephone Coils. (Fig. 124). In 1956, Western Electric Co. entered into a consent decree with the federal government under which it agreed to cease selling certain of its products to a prescribed group of customers. It is further understood that Western Electric voluntarily enlarged the list to avoid the inconvenience of selling certain items which were not included in the original consent decree.

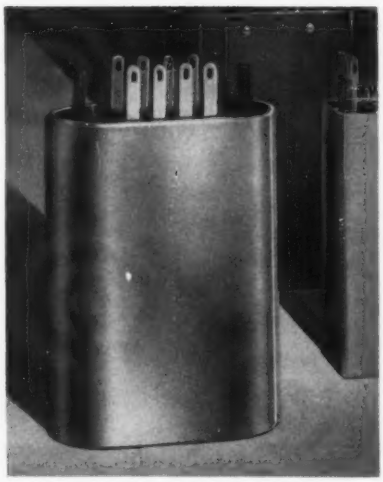


Fig. 124. Telephone coils.

For many years the Audio Development Co. has been a dependable source of transformers and filters to the telephone and telegraph industry. When Western Electric announced that it would no longer supply these components to manufacturers, the Audio Development put its 24 years of experience to good use by designing and tooling on a series of "coils" which are electrically and physically interchangeable with similar components made by Western Electric. These coils are now available to meet the needs of the Independent telephone industry.

•

Copperweld Ground Rod Clamps. (Fig. 125). Permanent, low-resistance, copper-to-copper connections are claimed to be assured by Copperweld Steel Co.'s new Type AB ground rod clamps. Providing a high-pressure contact between the rod and the grounding wire, these clamps eliminate the need for soldering the grounding wire to the ground rod. They can be easily disconnected when necessary to measure the resistance of the ground.

These clamps are made with a strong cast bronze body and are especially designed for use with Copperweld ground rods.

The new clamps are equipped with non-ferrous set screws. The end of the set screw that grips the ground rod is cupped and makes a depression in the rod when tightened so the clamps cannot slip on the rod. Either safety or hexagonal-head set screws can be supplied. Allen wrenches are furnished free with clamps having safety set screws.

The size of the clamp is designated by the size of the ground rod with which it is to be used. Type AB clamps are available in the following sizes and will accommodate the respective size of grounding wire shown in parenthesis: ⅜ inch clamp (6 to 14 AWG); ½ inch clamp (2 to 10 AWG); ⅝ inch clamp (1/0 to 8 AWG); ¾ inch clamp (1/0 to 8 AWG); 1 inch clamp (1/0 to 8 AWG); ¾ inch special (4/0 7-wire strand); 1 inch special (4/0 7-wire strand).

Fig. 125. New Copperweld ground rod clamps.

Copperweld Type AB Ground Rod Clamps are tested and approved by Underwriters' Laboratories and are listed in their Electrical Construction Materials List. Therefore, they are in conformity with the provisions of the National Electrical Code applying to the installation and use of grounds.

•

Anchor Rods. (Fig. 126). A process developed by Copperweld Steel is being used to produce strong, permanently dependable anchor rods. Known as Molten-Welding, the process applies a thick, continuous cladding of copper around a high-strength steel core.

The non-rusting copper protects the steel core from corrosion. Thus, the

anchor rod keeps its strength and provides permanent safety of the overhead line.

The rods are threaded at both ends and are applicable for use with all types of anchors. For completely non-rusting construction, the company has available non-ferrous single, twin and triple guy eyes, square nuts, hexagonal cap nuts, drive points and washers. A coating of tin is applied to both ends of these rods so that other types of fittings may also be used.

Copperweld anchor rods are supplied in various lengths. Rods with the following diameters and corresponding strengths are available: ½ inch—12,500 pounds; ⅝ inch—18,500 pounds; ¾ inch—26,500 pounds; 1 inch—45,000 pounds.

•

Communication Tower. (Fig. 127). A heavy-duty communication tower, known as the No. 60, is being manufactured by the Rohn Mfg. Co.

This tower utilizes the No. 9 section of the Rohn "self-supporting" tower and can provide extra rigidity and strength in heights up to 630 feet when properly guyed. Its strength lends the tower to a wide range of communication uses including the mounting of antennas for micro-wave, radio communications, radio telephone, military needs, TV reception and amateur uses. It is particularly designed for use where extreme wind-loading and height requirements must be met.

All tower sections are completely hot-dipped galvanized after fabrication to permanently protect all points of welding and construction against corrosion. Ease of shipping and installation are facilitated by the uniform 10 foot length. Each section is 26¼ inch equi-

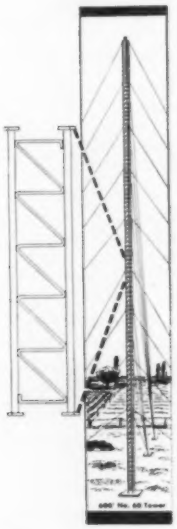


Fig. 127. Heavy-duty communication tower.

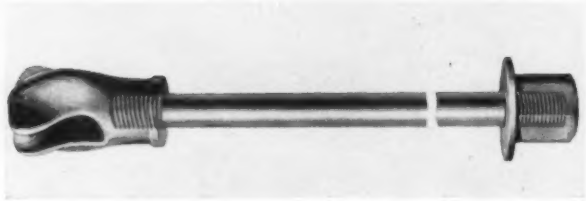


Fig. 126. Molten-welded anchor rods.

lateral triangle in size with ⅝ inch solid steel rod zig-zag cross-bracing attached to 2 inch—11-gauge tubing for legs.

•

Printed Cables (Fig. 128). These cables are representative of the first production of continuous-length printed circuits in the industry. A product of Sanders Associates, Inc., they consist of thin, flexible strips of plastic insulation encapsulating flat, etched-copper conductors. A typical, almost paper-

Fig. 128. Flexible printed cables.

thin, 3-inch wide cable is equivalent in number of conductors, current-handling capacity, and environmental characteristics to standard 1-inch diameter rubber-covered marine cable. A 50-foot reel of this cable weighs less than 3 pounds and can be contained in less than a 4-inch cube. Applications for the long-length, heavy-duty printed cables include shipboard, missile and aircraft wiring. However, flexible printed cables can be used to meet practically all wiring requirements.

The flexible printed wiring techniques have been developed to achieve high component and wiring density circuits. These include: The laminating of flexible circuits in several layers with interconnections between layers; matrix forming using advanced welding and soldering techniques; etching to fine conductor widths and spacings; preforming of circuits to conform to package shape, and use of miniaturized connectors. Applications of these techniques include microminiature commutators and pickoffs for magnetic memory cores; interconnection of micromodule elements; and electronic probes for detection of surface wear.

Circuits in which one or more conductors are shielded, simulated twisted pairs, and flat multiconductor coaxial cables are available. Shielding configurations do not limit flexibility.

•

Portable Electrical Distribution Systems. (Fig. 129). This is a portable electrical distribution system, designed by Whitney-Blake Co., for the use by telephone companies, public utilities and municipalities. The system consists of neoprene-jacketed portable cords molded to neoprene connectors and protected by circuit breakers in molded neoprene panels. Various combinations of components can be assembled to provide systems specifically suited to the operation. Extensions can be added to increase the range of operation as required.

These systems make it possible for installation and maintenance crews to operate flashing warning lights, flood lights, trouble lights, electric drills,

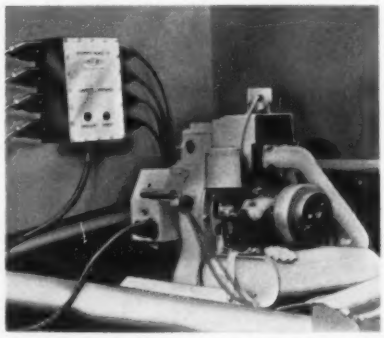


Fig. 129. Portable electrical distribution systems.

saws, pruners, motor driven blowers, electric heaters, emergency battery charging power supply for dial equipment in satellite exchanges, etc.

With electric generators now available on construction trucks, crews can be entirely independent of fixed power sources. This system can be attached to the portable power generator on the truck. Each system has the overload protection of circuit breakers in a breaker panel. The breaker panel, the largest component of the system, can be mounted to the truck by means of a set of straps. Two types of breaker panels are available. One type, a two-pole panel, has four interrupter circuits for flashing lights and four steady circuits

for tools and equipment. The other has eight steady circuits.

This system is safety engineered to protect the lives of the men using them. The system with the patent connectors is completely waterproof so that rain, snow, puddles and dampness are no hazard. The plugs that connect to the flood-flasher circuit-breaker panel are polarized. They cannot be plugged into any outlet except the breaker panel. This means that when the system is in operation, overload protection will be present at all times. The circuit breakers are completely encased in neoprene, including the "reset" buttons. There is no possible way to receive a shock if the neoprene cover is intact.

Besides the black neoprene, cords and components are available in yellow neoprene. Yellow, the color of greatest visibility, has been selected for its high contrast with surroundings. This increased visibility is most useful in operations where artificial light is used such as night work and work in manholes.

•

Transistorized Multiplex Carrier. (Fig. 130). General Electric Co. has developed the first transistorized multiplex-carrier system capable of handling up to 600 voice frequency channels on a single radio beam.

Fully transistorized, the new single sideband suppressed carrier system has toll quality capable of meeting international and domestic long distance standards. It is of interest to telephone companies, and also utilities, railroads, pipelines and other users of microwave and cable systems.

In the new multiplex carrier, reliability is enhanced by the use of a technique which utilizes a standby component for each component in the common equipment, such as amplifiers and master oscillators. Upon failure of an individual part, the parallel component keeps operating, with no switching delay to seriously affect data transmission.

Also achieved in the new multiplex-carrier is a substantial reduction in power drain. Typical equipment currently available in the communications industry requires thousands of watts for a system utilizing 240 channels. This new design takes less than 700 watts for the corresponding capacity. This results in savings on batteries, chargers, generators and power, which can be sizeable, for example, at remote microwave locations. It further contributes to longer life for other equipment housed at the same location which may be affected by tube heat.

Despite the increase in capacity which makes 600 channels available in transistorized equipment for the first time,

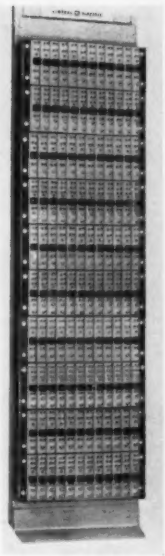


Fig. 130. Transistorized multiplex carrier.

compactness is a feature of the new product. It is one-third the size of conventional tubed equipment. The new design makes possible 120 channels in an 8-foot rack space where only 24 channels previously could be accommodated. This should be of interest to telephone companies and others who are faced with the need for expansion but lack adequate space. The new equipment will make expansion possible without wall alterations.

The use of modules provides flexibility for future expansion of the number of channels used.

•

Replaceable Gaff Adjustable Climbers. (Fig. 131). These Klein climbers have been developed to meet the demand for such a type of climber to assure safety. To obtain maximum safety, Klein recommends that the leg irons be replaced after three sets of gaffs have been used.

The replaceable gaff is held in position by a self-locking screw. The full impact, when using the climber, is absorbed by the gaff and leg iron. None of the load is absorbed in the self-locking screws.

Fig. 131. Replaceable gaff adjustable climbers.

These climbers are adjustable to 14½, 15, 15½, 16, 16½, 17, 17½, 18, 18½ and 19 inches measured from the instep to the top of the slide. They are furnished in matched pairs, right and left. Wide stirrup gives full support. Offset shank brings the gaff in proper line with the leg bone, assuring security and comfort. Aluminum finish is provided. Every climber is individually tested.

These climbers are available with riveted top loop and forged triangular ring at the ankle, or with riveted top loop and riveted ankle loop. Replaceable gaffs are finished complete with lock screw and wrench.

•

Climber Gaff Guards. (Fig. 132). These gaff guards, made of top-grade harness leather with stainless steel clips, are designed for use on any Klein climber. A stout piece of fiber acts to prevent the point of the gaff from penetrating the leather guard. The proper

Fig. 132. Climber gaff guard.

use of this guard prevents damage to the gaff point and insures safety of linemen.

•

Oblique Cutting Plier. (Fig. 133). This high leverage oblique Klein cut-

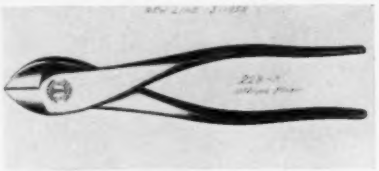


Fig. 133. Oblique cutting plier.

ting plier has proved extremely useful for cutting old tie wire. It will be found convenient for use on many jobs where side cutting pliers may not prove adequate.

•

Skinning Plier. (Fig. 134). This Klein plier is especially designed for cutting and skinning 24-gauge synthetic-insulated wire. A notch in the nose back of the cutting blade crushes the insulation. The sharp blade assures a quick, clean, cut. The nose is tapered

(Continued on page 49)

It's Time for More Adequate Earnings, New Yorkers Told

By Dan S. Fargo

"I THINK it's time for us in the telephone industry to stop apologizing! Instead we should start putting greater emphasis on the need for more reasonable earnings for telephone companies," stated Hamilton A. Cunningham, executive secretary of the New York State Telephone Association, in a thought-provoking talk given before that group's 38th annual convention. The meeting was held at Schroon Lake on June 20-22, with Albert N. Seward of Jamestown, presiding. Attendance total 486—a record.

Mr. Cunningham summarized briefly the preceding year's association activity in order to devote his main attention to what he titled, "Profit and the Telephone Business." He began:

"A friend of mine recently asked a question that I'm certain is typical of what you folks must hear from day-to-day. 'Why,' my friend demanded to know, 'why does a telephone company need higher profits? You're a public service. And besides, you're a monopoly. You don't have any competition.'

"Even though profit is one of the most important factors contributing to the growth of our economy, it's pretty evident from this question that my friend—as so many others we all know—just doesn't have any notion of how essential profit is to a business like ours. Nor do these people realize that profit benefits our customers, our communities, the state and the nation.

"Many of these people conclude that any profit above a bare minimum is a bad thing—that it takes away from everyone else's share. We know they're wrong! Dead wrong, because actually, the reverse is true: good profits can make everyone's share bigger!

"I'm afraid we're partially to blame for the misconceptions that stand in the way of our achieving good profits. Some of us have been too close-mouthed about profit—too hesitant about letting others know how badly we need good earnings. Perhaps many of us have been ashamed to admit we're in business to make a good profit."

Mr. Cunningham said telephone companies need profits substantial enough to permit growth and improvement of service.

New officers and directors of the New York State Telephone Association are (seated, left to right): Sheldon A. Birdsall of Margaretville; Donald F. Davison of Spencerport, secretary-assistant treasurer; George S. Beckwith of Keeseville, president; C. Ray Lloyd of Manlius, vice president; W. Malcolm Griswold of Phelps, treasurer, and Hamilton A. Cunningham of Albany, executive secretary. Standing are: Frank D. Fancher of Middletown; Marshall K. Taylor of Johnstown; William A. Seely of Norwich; William A. Kern of Rochester; Fred S. Florance of Monroe, and Albert N. Seward of Jamestown, outgoing president. Roderick A. Nixon of Westfield, newly appointed director, was not present for the picture.

As for the point made by his friend that the telephone company has no competition, he pointed out, "Your company is, or should be, competing vigorously in several ways. . . . You compete with all industry for labor. You must pay good wages to attract and hold outstanding people to operate and to manage your telephone business. You also compete for capital. Investors won't be interested in your company if they know they can get more for their money elsewhere.

"Less evident, though, is the fact that your company is competing for a greater share of the consumer's discretionary spending dollars—the money he has left over after meeting monthly bills and buying basic necessities."

In the face of these competitive pressures, there is no room for complacency in the telephone industry, Mr. Cunningham said, and added:

"To keep pace, we must continue to expand, to improve service. We must meet new demands promptly and we must seek out better ways to serve our customers. We must compete with non-regulated industry—and we must do it on an equal footing—or your company and the rest of the telephone industry is in trouble.

"What this means is that in order to compete effectively, we've simply got to have the profits that will enable us to do so. Profit is the key to our survival in a competitive market.

"Profit means research and development!

"Profit means more and better-paying jobs!

"Profit means improved service.

"In fine, profit means a vigorous company in a sound economy.

"But our hands are tied—tied by regulation that fails to act as a true substitute for the forces of competition—regulation that focuses on immediate price and profits alone. We have, in fact, restriction, rather than regulation.

"Don't take me wrong. I'm not advocating the elimination of regulation. . . .

"What I would like to see, however, is a new public climate—one that recognizes the change in economic and social conditions since the ground rules for regulation were established many years ago—one that realizes that regulatory policies must keep pace with the changing times."

Mr. Seward, association president, in his talk paid tribute to the members of the association, calling them "progressive citizens" and "leaders in their communities." He said, "We are men and women to whom people look for guidance. The nature of the telephone business offers opportunity for civic leadership."

Mr. Seward touched briefly on the accomplishments of the intercompany operations committee (see report by C. Ray Lloyd of Manlius, committee chairman, below) as well as other committees. He also observed:

Executive Secretary Hamilton A. Cunningham delivering his annual report and speaking on "Profits and Our Business."

"Private or free enterprise has made the telephone industry great.

"Every American, as I see it, should be opposed to any branch of our government entering or going into competition with private industry; yet day-by-day some branches of our government are going into business.

"One question has always bothered me. Why should our government take our tax or borrowed money and loan it to private individuals or corporations at an interest rate considerably below what the government has to pay for hired money?"

Mr. Lloyd reported the results of meetings his committee had with the New York (Bell) Telephone Co. relative to EAS and MEAS settlements. He stated:

Albert N. Seward of Jamestown, at this convention brought his two-year tenure as president to a close.

"Brief definitions of the terms are as follows: EAS means extended area service or two-way toll-free service between adjacent offices. MEAS means metropolitan extended area service or toll-free service between offices in a metropolitan area network.

"During the course of the last eight or nine years the attitudes towards the benefits to be derived from EAS (and . . . I am going to refer to both EAS and MEAS under the heading of EAS) have changed considerably.

"At first it seemed that the Bell System had offered the Independents a golden egg when the invitation to join in an EAS program was extended. (1) Switching charges where a multioffice network was involved, and (2) proper cable carrying charges to the boundary or midpoint provided varying points of discussion in past years.

"Approximately one year ago Bell-Independents EAS settlements were resolved in New York state so that those in effect today are as follows: (a) There is no switching charge, and (b) the cable carrying charge to the midpoint is 95¢ per circuit mile, where applicable."

Mr. Lloyd listed the benefits of EAS networks as: (a) The subscribers are going to benefit from and enjoy the expanded toll-free calling areas; (b) the cost of writing toll tickets is eliminated, and (c) the cost of sorting, billing, and collecting for the toll tickets is eliminated.

He asked his listeners to "bear in mind that second-tier EAS exchanges are more distant from the hub exchange than a first-tier exchange and have trunks to a greater number of EAS first and second-tier exchanges than does a first-tier exchange.

"We considered closely the costs to the second-tier exchange of joining an EAS network. These costs consist mainly of (a) loss of 'A' toll commission; (b) cable carrying charges to the midpoint, and (c) carrying charges on the associated central office equipment.

"To offset these costs, the second-tier office should expect an increase in local service rates up to the 'group rates' applicable to the network. When the losses and gains were compared, it was found that the losses to the second-tier exchange far exceeded the gains."

Mr. Lloyd said the proposed new settlement for EAS business interchanged with the New York Telephone Co. (in New York state) will be applicable to existing EAS networks, whether first-tier, second-tier, or higher tier, as well as all proposed first-tier, second-tier, and higher tier exchanges. The proposed EAS settlement:

(A) The New York Telephone Co. is willing to provide the cable facilities to the connecting company's main frame such as is done in our present toll set-

"Reflections on the Road Ahead" was the subject of Karl T. Dutschmann's message. Left to right: Kent H. Brown, New York Public Service commission counsel; William A. Kern of Rochester; Mr. Dutschmann of New York, and Ray Monsalvatge of Dayton, O.

tlement. If the new settlement is agreed to, then the cable carrying charge to the midpoint would disappear at the effective date of this settlement which we hope will be Sept. 1, 1960.

(B) A new settlement, which may very well be called an EAS settlement, will be created. Bear in mind this new EAS settlement is simply a means of jointly sharing the savings and benefits of an EAS development.

Briefly this is how the new EAS settlement is determined. Procedure:

(1) A separation of all costs will be made for the Independent exchange between Bell-interchanged toll, Independent-company toll, EAS interchanged with the New York company and Independent-company local services.

(2) The separate revenue requirements for interchanged EAS and for local services will be determined based on the costs developed in (1) and the rate of return earned by the New York company on its state operations over the past few years. (In the studies to be started in the immediate future, 7 per cent will be applied to the net property allocable to EAS).

(3) Local revenues which would accrue to the Independent company by applying New York company subscriber rates for that size exchange, will be apportioned to EAS and to local services in proportion to the revenue requirements developed for EAS and for local services in (2).

(4) The New York company will compensate the Independent company for the difference between the EAS revenue requirement in (2) and the revenues assigned to EAS in (3) when employing New York company local rates.

Foster B. McHenry of Jefferson City, Mo., president of the United States Independent Telephone Association, acknowledged for USITA the cooperation extended the national organization by the state associations. In his "The Golden Decade Is Here," Mr. McHenry said he believes the present high regard nationally for USITA is heavily due to the association's national advertising, concentrated, for the current year, in the *Saturday Evening Post.*

The Independent telephone industry's investment in plant now exceeds 3½ billion dollars and employes number over 100,000, Mr. McHenry stated; also, 100 companies now have incomes over one million dollars annually. Despite this strong showing, Mr. McHenry said the industry needs:

Recruitment of more young people.
More technical trainees to handle increasingly complex operating problems and equipment.
Higher training standards.
More investors.

Karl T. Dutschmann, vice president of New York Telephone Co., presented "Reflections on the Road Ahead." One problem to be faced, he said, is that new developments in the electronics field have given great impetus to the design of equipment to work with telephone company services.

He added, "The prospect of being able to tie something to the millions of telephones in this country is irresistible. Independent of our service but competing with it are various home and office communications systems, with hundreds of different features and at apparently attractive prices.

"You are well aware of the fact that there is the threat to our whole industry of making available microwave systems to everyone who wants them. I needn't mention to you, also, the increasing pressures to connecting our telephone systems to privately owned PBXs and a great number of other facilities which electronic manufacturers are offering to the public.

"A sign by the road marked 'Competition' is coming into focus and let's heed it well! For us in the communications business it carries a message far beyond the ordinary meaning of the word."

Mr. Dutschmann reflected that what we consider good service by today's standards will be wholly inadequate in the future. This calls for introduction of an element of initiative in thinking of service, not only today, but also in anticipating the future needs of customers.

To earn adequate profits, he said, requires, in addition to obtaining adequate rates:

Going after new business as aggressively as possible.
Taking advantage of mechanical aids for clerical work.
Using computers where possible.
Mechanizing billing operations, supply operations and inventory control.
Introduction of person-to-person dialing and coin dialing.
Use of line concentrators and other cost-saving devices.

"The Staff" was the topic of Kent H. Brown, New York Public Service Commission counsel. Mr. Brown devoted much of his talk to analyzing a four-paragraph statement, critical of a "regulatory commission," and which

(Continued on page 47)

Speaking at the New York association convention, Rev. Colin F. Miller, dean of the college chapel, Hamilton College, Clinton, N. Y., adds a liberal amount of humor to his serious remarks. Left to Right: Hamilton A. Cunningham of Albany; Don H. Walker of Shortsville; Rev. Miller, Alvin P. Hammel of New York City, and C. Ray Lloyd of Manlius.

BY PAUL E. MURPHY, ELECTRONICS EDITOR

Part 1

CABLE CARRIER SYSTEMS

THIS IS THE FIRST of three installments of a discussion on cable carrier systems. Part I will cover the general need of a short-haul cable carrier system and some of the engineering considerations involved.

A great deal of interest has been expressed in short-haul carrier systems which have been, and will continue to be developed by manufacturers of telephone carrier equipment. Of particular interest are the short-haul systems being developed for cable application.

This interest stems from the fact that many ducts are now overloaded and to replace these ducts with new and larger capacity ducts in which to install large amounts of cable, and, in turn, to provide more message circuits, would be very costly.

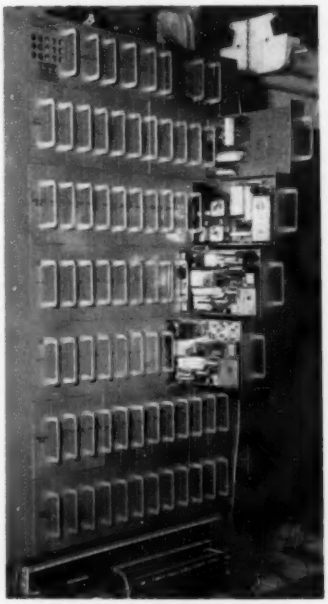
This writer is associated with an operating company that recently installed a newly-developed cable carrier system—a Kellogg K-24 system. This article is intended to serve as a medium to relate the writer's experiences with that system.

The material which will be presented here is by no means completely original; however, much of the test analysis and experiences being related have resulted from actual in-the-field experiences. Acknowledgement must be made to those engineers of Kellogg who have assisted in providing necessary engineering information, system specifications, etc., which are necessary in evaluating their systems, and which must necessarily be a part of this article.

Many of the specifications of the K-24 cable carrier system were discussed in the June 11, 1960, issue of TELEPHONY and will not be discussed here except as they relate to a specific application.

A Problem

A few years ago, Telephone Services, Inc., placed into service a 19-gauge toll cable with quad capacity between Orrville, O., and its toll center, Wooster, O., some 12 miles apart. With considerable decentralization of several existing industrial plants, new manufacturers moving into the area, and with many new housing developments growing up in this section, creating an unexpected growth, the cable facilities soon became overloaded. Installation of supplementary cable, or other facilities, proved to be quite costly. This led us to consider the installation of a relatively low-cost cable carrier system.



Short-haul carrier system.

Engineering Considerations

(1) *Plant Records.* One must realize that the engineer has many tools and many "tricks" that are difficult to formulate in any digest, no matter how complete. Therefore, for him to give exact specifics as to how long a repeater section can be, except beyond a certain maximum distance (loss-wise); how long a system can be (summation of all sections), and many other details, without knowing the particular condition of a plant or area served, is premature.

The point I am attempting to make is that the problems encountered in engineering systems of this type are not always the same; therefore, the answers may be different.

In laying out any system of this nature, it is necessary to obtain a layout of the plant over which it is desirable to impose carrier. Such a layout may be obtained from the plant engineering group. The layout should indicate the distance of plant from office to office, amount of aerial plant and underground plant, gauge and type of cable, distance between load sections and manholes and, if possible, pole-to-pole measurements.

(2) *Factors and Terms.* Before we proceed too far, let us review a few equipment specifications that become quite important when determining repeater section and terminal section lengths. In many instances, these specifications are the same, but not always.

For example, in the design of the K-24 carrier systems, the terminal transmit message is —8 dbm and the terminal receive message level is —33 dbm; thus, terminal section line losses may approach 25 db at the highest frequency.

On the other hand, the repeater gain is approximately 28 db, including certain component losses at the highest frequency; thus, longer sections may be employed between successive repeater sections.

It must be pointed out, however, that, as a general rule, 4 or 5 db is reserved for so-called "fudge factors." This is especially true where engineers sometimes cannot get into the field, or a road move may be required at some time in the future, thus permitting slight changes without complete re-engineering, and perhaps considerable expense in relocation of all repeaters along the route.

Another reason that losses, less than the maximum permissible, are engineered for is the location of and accessibility of certain manholes and the desirability to locate pole-mounted repeaters at certain out-of-the-way sites, not subject to hazardous driving conditions.

Another important consideration is the so-called slope of a line. The slope is simply a measure of a general increase in attenuation with frequency. Networks are installed in repeater receive and terminal receive sections to equalize this so-called slope. In actuality, they provide characteristics opposite that of the cable; that is, the equalizer network has an inverse slope to the line and, in conjunction with the characteristics of the line, provides a relatively "flat" frequency-versus-loss curve.

Equalizer pads are specified by the amount of slope for which one wishes to compensate. In the case of the K-24 system, the slope considerations are at the lowest and highest frequencies of 64 and 480 KC, the spectrum within which this system operates.

The factors for determining flat and slope losses in K-24 applications are as follows for various gauges and capacities of cable over which the system is expected to find wide usage. (All factors are listed in db/kft—decibels per thousand feet):

Gauge Cable	Capacity	Flat Factor	Slope Factor
19 Gauge	LC	2.12	1.36
19 Gauge	HC	2.76	1.77
22 Gauge	LC	2.90	1.74
22 Gauge	HC	3.64	2.12

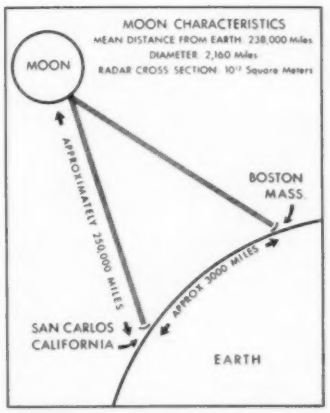
In determining the flat loss of a transmission facility in db and the slope in db, it is only necessary to multiply the length of the facility expressed in kilofeet by the specified factor.

In our next article, Part 2, we will discuss the actual layout of a K-24 system.

HAM EARTH-MOON-EARTH CONTACT MADE

THE FIRST amateur radio moonbounce two-way microwave communication took place on July 21 between two distant points. This contact marks an important milestone in the development of amateur radio. The historic contact was between the members of the Eimac Radio Club in San Carlos, Cal. and Sam Harris, Rhododendron Swamp VHF Society, Medfield, Mass.

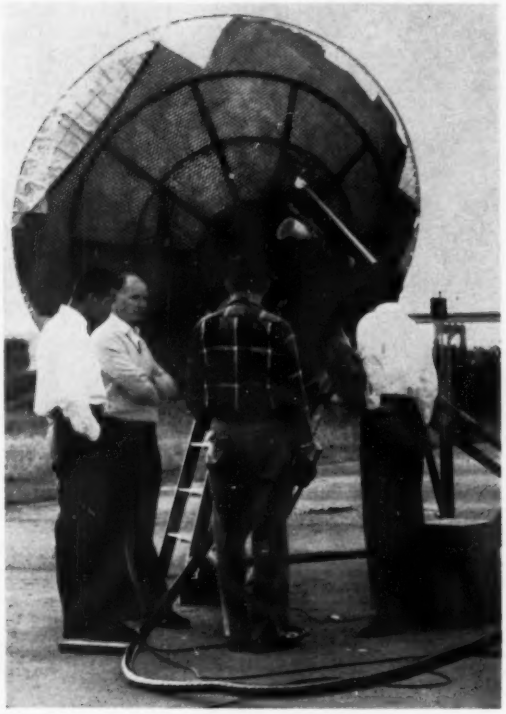
After months of personal effort by the radio amateurs concerned with this project, signals were transmitted in both directions on 1296 mc on July 17. The equipment was then refined and the first successful two-way communication was made on July 21 between 7:30 and 8:00 a. m.,



Path of first amateur radio moonbounce microwave signal.

Pacific Daylight Time. The first transmission was from West (W6HB) to East (W1BU). The pattern was then reversed and the first amateur coast-to-coast communication via the moon completed. At

Radio equipment used in earth-moon-earth contact.



Make-shift dish used by ham operators in first coast-to-coast moon-bounce communication.

each end of the circuit, a 1000-watt klystron was used in the transmitter and a very sensitive Microwave Associates MA2-1000 parametric amplifier in the receiver.

This successful reception and transmission using the moon as a signal reflector will stimulate efforts to improve amateur-built equipment for further moon-bounce communications. The only other moon bounce communications equipment in existence is military or experimental in nature; the principal installation is the Naval link between Washington and Hawaii which employs huge 85-foot antennae and special equipment not available to amateurs.

Once again the amateur radio operator has shared in progress through his constant desire to experiment with radio as a hobby.

"SHORT-HOP" MICROWAVE

THE USE of microwave to provide a highly efficient medium over which large-density multiplexing systems and television channels are imposed has been in effect for several years. Most of these systems, however, have been used on large backbone routes or have been used to provide communications over what may be termed moderate distances.

An article by C. L. Ruthroff and L. C. Tillatson, recently published in the *Bell Laboratories Record*, described the development of a short-haul light-route microwave system which has been in experimental usage since December, 1957.

The *Record* describes the basic concept behind the system which has been operating at 11,000 megacycles with a baseband of two megacycles, over a "two hop" loop from its Holmdel, N. J., laboratory to a tower approximately 2 miles away and return.

"The basic concept is that of a radio-relay system with a closer spacing of repeaters, about 5 to 10 miles instead of about 30 miles as for TD-2, TH, and TJ system. (The TD-2, TH, and TJ systems are used by the Bell System for long heavy-route traffic and moderate lighter-route traffic.) Antennas would be mounted on poles or towers; but, because of their close spacing, these need not be very tall. In fact the idea is to use existing rights-of-way along telephone pole routes wherever possible, or at most use a small amount of land, perhaps as little as 10 feet by 10 feet."

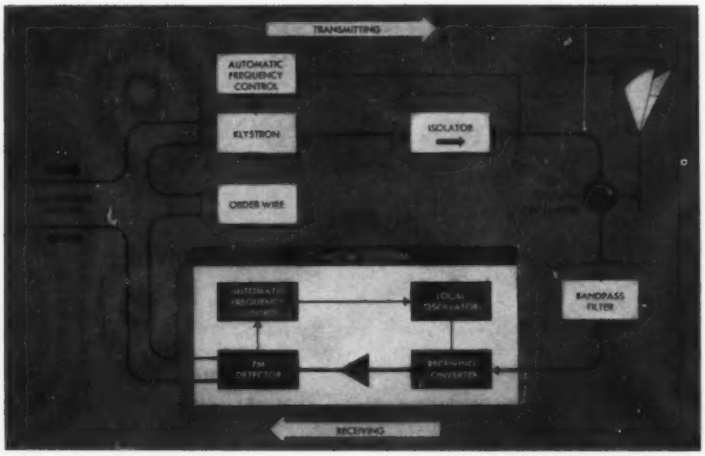
It was explained that, "On this small area the tower is erected, and at its base is a fairly small cabinet containing the complete transmitter, receiver and power supply for the repeater or terminal."

In describing the new experimental system, the following features were pointed out as being responsible for simplified, economical, and reliable design:

(1) Direct modulation of the transmitter klystron.

(2) Use of an efficient ferrite isolator at the output of the transmitter klystron, thus reflections from the antenna do not interfere with the klystron oscillation and modulation.

(3) Use of a circulator, another ferrite device, at the junction of the transmitting and receiving paths to



A block diagram of the experimental "short hop" microwave terminal (Bell Laboratories Record *drawing*).

separate incoming and outgoing signals.

It was stated that at present a laboratory model of the entire 70-mc. i-f section using transistors has been built and that with this improvement the total power required by a one-way repeater is less than 35 watts.

"The antennas have been erected on towers of a very simple but sturdy design. The small horn-reflector antennas used with this system have a beam width of 1.25 degrees, and transmission is maintained within acceptable standards in gale winds.

"An important feature of the antenna system is that signals are transmitted between the antenna and the equipment on the ground via a waveguide which, being oversized, contributes very little loss.

"With the 2-inch aluminum pipe presently used, loss of 11.2 kilomegacycles is only .65 db per 100 feet. The system is not pressurized, but other measures have been taken to avoid the moisture problem. The waveguide is nearly straight and is smooth and clean on the inside. The waveguide pipe is open for drainage at the bottom.

It was stated that the experimental system has demonstrated several facts that will be relevant to any future consideration to this type of service. These are:

(1) A few dozen channels can be handled by a simplified system over a number of hops, each as short as 5 to 10 miles.

(2) It appears quite practicable to use an unpressurized antenna on a low, simply-constructed tower.

(3) A complete microwave radio repeater can easily be installed out-of-doors in unheated cabinets.

(4) The problem of supplying reliable power appears to be solvable through the use of solid-state devices, etc., which favor low current consumption.

CONTINUITY TESTER

IN THE INSTALLATION of telephone apparatus, large amounts of external cabling are necessary to extend various control and "talking" leads to intermediate or main distribution frames for interconnection to other apparatus.

To insure that wiring errors and defective wiring do not exist within this interconnecting system, it is generally considered necessary to "buzz out" these cabling components.

A new, inexpensive continuity tester, the "Circuitester" for making tests such as those just described, has recently been developed by Invar Electronics Corp., Pasadena, Cal.

The "Circuitester" developed by Invar Electronics Corp. may be used for checking continuity of wiring.

The tester is a transistorized buzzer and gives an audible tone, the pitch of which changes with path resistance changes to 15 ohms. Path resistances in excess of 15 ohms do not permit the buzzer to operate.

Very low current drain extends the tester battery life and prevents damage to sensitive circuit components such as transistors.

SYMPOSIUM ON GLOBAL COMMUNICATIONS

NEARLY a thousand specialists, technicians, and executives concerned with all phases of Global Communications will be convening for the 4th National Symposium on this subject area on Aug. 1, 2 and 3, in Washington, D. C. The Statler Hilton Hotel is the official headquarters for the entire meeting.

The symposium, called GlobeCom IV, emphasizes consideration of the "long lines" and radio communication systems that cover substantial portions of the globe and serve large numbers of widely separated commands. This conference is designed to promote understanding of the problems, and the new techniques involved which are mandatory to meet expanding needs; and to solve the growing economic problems which are of concern to industry and government alike.

Pertinent comments during the keynote session on the recently established Defense Communication Agency will set the stage for the technical program.

The Symposium is presented under the joint sponsorship of the Professional Group on Communications Systems of The Institute of Radio Engineers, and the United States Army Signal Corps.

ELECTRONIC BOOKS AND HELPS

Build Your Own

ELECTRONIC Instrument Co., Inc., 30-00 Northern Blvd., Long Island City, N. Y., has recently published a new 28-page catalog covering its complete line of stereo and mono high fidelity test instruments, ham equipment, citizen transceivers and radio in both kit and wired form.

This new catalog contains pictures as well as detailed specifications. Prices are available on request from the company.

Reactance Calculator

A HANDY reactance slide rule for simple calculation of resonant frequency, capacitive reactance, and inductive reactance has been re-issued by Shure Brothers, Inc., 222 Hartrey, Evanston, Illinois. Price, $1.00.

The slide rule also may be used to solve coil "Q" and dissipation factor problems that cover a frequency range from 5 c.p.s. to 10,000 megacycles.

Advertisement

How To Get Your Money's Worth From Electronic Equipment!

THE TELEPHONE industry is rapidly taking advantage of new developments in electronics. This is only natural. Since the telephone first came into existence, telephone men have been quick to recognize the value of new developments.

Thus it is not surprising that the industry is using more and more electronic equipment. Mobile radio is used to connect telephones in cars, trucks and other vehicles. Microwave relay links are used in place of wire and cable in many places. Electronic carrier

Carl E. Smith, E. E., President Cleveland Institute of Electronics

circuits and repeaters result in better utilization of existing (and proposed) facilities.

All of these improvements are available today. Tomorrow will see even greater advances. The manufacturers of telephone equipment can be relied upon to give you the kind of equipment you need to fulfill your obligations to your subscribers.

However, you should keep in mind a fundamental principle of management . . . a chain is only as strong as its weakest link. Thus, no matter how big or small you may be, your equipment will not give maximum performance unless it is maintained by competent technicians.

Every company has a technical staff. It may consist of hundreds or perhaps thousands of men . . . or there may be only two or three. These men know and understand telephone technology as it used to be, but in all honesty, do they understand the fundamentals of electronic circuitry?

If they aren't on speaking terms with oscillators . . . rectifiers . . . amplifiers . . . transistors . . . etc., they are not going to be able to give you the technical support you need. A man may be able to wire a central office switchboard in the dark, but if he isn't skilled in the mental tools of electronics, your new equipment will not give you the service you paid for.

In all probability your present staff is very capable. You wouldn't have one which didn't give you the reliability you must have. Therefore they are the logical men to take on the maintenance of electronic equipment . . . as soon as they have received a sound foundation of electronic fundamentals.

This can be done economically and without the loss of valuable man hours by a non-resident training program. Several schools offer this service. They teach your men the fundamentals of electronic circuits. Then, with the ability to understand the principles of any electronic device, your company and the equipment manufacturer have only to conduct a brief orientation of the specialized equipment.

This plan has been used successfully by many companies. It has helped them . . . and it can help you. It will pay you to investigate and get the facts.

For full information on schools providing training in electronic theory and FCC license preparation, write to the National Home Study Council, 1420 New York Avenue, N. W., Washington 5, D. C.

If you would like the details on a "guaranteed" Employers Plan for training technical personnel, write to

THE REGISTRAR
CLEVELAND INSTITUTE OF ELECTRONICS
4900 EUCLID AVENUE, DESK TE-47
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SATT keeps billing errors on toll calls to a minimum

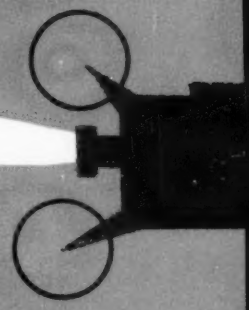
NEVER RECORDS INCOMPLETE CALLS! CALL DATA CAN'T BE ERASED!

About 10% of the Independent dial phones in the U. S. are served by Strowger Automatic Toll Ticketing. The reason for this wide acceptance is simple! With SATT, billing errors are kept to a minimum. Here's why...

Only completed calls are recorded. SATT throws out incomplete calls before the tape is made. Only completed, billable calls are recorded on tape. This reduces errors. And—your equipment is never tied-up recording useless data on incomplete calls.

Call data can't be erased. SATT gives you a permanent record of the call. Data for each completed call is quickly punched on tape. This tape can be checked, re-checked, run off repeatedly and retained to meet legal requirements.

SEE THE NEW FILM,
"MIRACLE ACROSS THE MILES"



This new film shows you how to increase revenue and reduce operating costs with automatic toll ticketing. We'll be glad to show the film in your office for you and your entire staff. To make arrangements, write Automatic Electric Sales Corporation, Northlake, Illinois.

AUTOMATIC ELECTRIC GENERAL SYSTEM

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

"ALL TECHNOLOGY requires the same brains identified with the scientist—the idea of two separate camps is unreal." So said Dr. John R. Pierce, an engineer and director of research communications principles at the Bell Telephone Laboratories, in a recent conference on technical communications.

Opposing points of view, however, suggest that engineers and scientists think differently. They belong to different social groups and in general, are a "different breed of cats." Agreement was voiced on the fact that communication within the technical community—and between the technical community and the public—is far from adequate.

The conference, entitled: "The Critical Million," convened top research people, technical editors and writers, and educators in an all-day session at New York University. "The Critical Million" is defined as the nation's scientists and engineers—some within industry—some from universities, government agencies, and other organizations. These are all depended upon to insure the growth of an industrial economy, to provide its maintenance, its defense, and its expansion.

•

We recently purchased a glow light for 98 cents which, it is claimed, can be operated for one year on one cent's worth of electricity. This device is about 3 inches in diameter and has the appearance of a mirror. Two prongs on the back can be plugged into any convenient wall socket. It produces a green glowing light of considerable density.

This light is considered ideal for installation in dark halls and stairways as a safety precaution.

•

We have often wondered why door knobs are round and smooth, especially when an attempt is made to turn one with wet hands.

Now we learn that one concern has placed a square door knob on the market, designed for easy turning by very young and very old fingers. Cast in bronze, brass, chrome or aluminum, this knob is recommended for use on heavy traffic doors such as in schools and institutions, as well as in the home.

In Germany, the conventional door knob is often replaced by a handle about 4 inches long which proves a most effective door opener.

•

Scientists reported to the Acoustical Society of America recently that a person's "tone of voice" can be detected even when he whispers. Experiments on communication by voice indicate that most persons could recognize happiness, surprise, boredom or disbelief in the voice of an unseen speaker.

Speakers, who had no dramatic training, would speak a neutral sentence such as, "The lamp stood on the desk," and attempt at the same time to express various emotions. The results indicated that it is possible to identify a number of tones of voice quite accurately even when there is a considerable amount of interfering noise or when the speaker whispers.

•

It is reported that the home accident death toll for January of 1960, in this country, was 2,700, or 2 per cent above January a year ago.

More deaths occur from poisonings and burns; fewer deaths from mechanical suffocation, firearms accidents, and falls.

Aside from a reduction in deaths of persons 65 years and over, all age groups indicated an increase in the number of deaths over last year, the largest change recorded for children 5 to 14 years old.

•

Some Independent companies appear to be slow in recognizing the many advantages to be gained by pressurizing their exchange cable distribution systems. The provision of this feature is simple. All that is required for a start is to procure a dry air compressor and connect it to the main cables in the central office. The closing of leaks in the cable sheath can then be accomplished on a progressive basis. Often, it does not prove economical to close all small leaks in cables, as it proves cheaper to pump air.

•

A new anti-slug protection feature has been added to all postpay and semi-postpay paystations manufactured by the Automatic Electric Co.

This "swindle-proof" device consists of a small alnico magnet located in the paystation's chute channel. If a magnetic type slug is dropped in the chute, the anti-slug ejector pulls it away from the 25-cent gong so that a signal cannot be made for the operator to hear. Following ejection, the slug is dropped into the coin hopper.

If a customer insists that he has deposited sufficient coins, the operator may return the coins he has deposited. She then asks for a re-deposit—which should discourage the reusing of a slug.

The operator is further alerted to possible slug usage while listening for coin signals. She'll hear noise from the coins or slugs as they pass down the chute, but if a coin signal does not follow, she knows that a slug has been deposited.

•

It is claimed that for each pupil with a spark of genius, there are 10 with ignition trouble.

•

Crosstalk—It is claimed that about all the United States is getting to see of the dove of peace is the bill.

•

Crosstalk: A quitter never wins and a winner never quits.

Courts and Commissions

Study N.C. Revenue Effect Of Inter-Intrastate Tolls

An investigation into long-distance rates charged by 35 telephone companies operating in North Carolina was ordered on July 15 by the North Carolina Utilities Commission, which said it appeared that intrastate toll rates and charges of the same companies "appear to be in excess" of those for interstate calls of comparative mileage.

The commission said the investigation was called to determine whether the rates, charges and practices are "unjust and unreasonable, prejudicial, preferential or otherwise in violation of the law."

Its order instructed each company to file "detailed and complete information" showing how its gross revenue would be affected if charges for instate calls were brought in line with calls going across state lines. The companies must use their first month-long billing period after Sept. 1 to gather information for this study, and all information must be filed with the commission by Dec. 31. A public hearing will follow sometime in 1961, it is reported.

Commissioner Sam Worthington, in a concurring opinion, said he favored a limited investigation, but felt that the commission was overstepping its authority in checking interstate rates. He said the language of the order "indicates that a discrimination exists now because of the fact that interstate toll rates are lower than intrastate toll rates. This commission . . . has no duty to eliminate discrimination except as between intrastate rates."

Mr. Worthington said the FCC may have been "somewhat unfair" to place interstate rates "at such a low level as to force local regulatory bodies to allow higher rates on intrastate toll service, and local service, for that matter, in order that the companies may earn a fair rate of return and stay in business.

"Even though it creates such a situation, it does not result in a discrimination, in so far as the operation of this commission is concerned," he said.

He said the information required of the companies will result in "long, tedious and expensive efforts, and in the final analysis the ratepayers of the several companies will bear the burden of this extra effort and expense."

Under the commission order, each company is required to submit information showing the gross revenue effect upon its operation, which would result from applying the interstate toll rates in effect on Sept. 1 to its intrastate toll operations.

Companies are also asked:

To make a study of a one-month period beginning Sept. 1, to coincide with billings or toll cycles, and then annualize the results.

To submit information in such a form as "will permit deviation from interstate toll rates in whole or in part from any mileage steps (in order to determine the revenue effect of various alternatives upon a company's operation).

"To arrange for such coordination and cooperation among themselves as is necessary and appropriate in determining the extent to which charges in basic rates may be expected to affect the average revenue per message.

"To submit a copy of each toll settlement contract; and

"To submit the results of a study on received and paid commissions for each separate toll settlement contract."

Approve Purchase; Ask To Serve Area in Missouri

The Missouri Public Service Commission on July 19 approved the sale of the Durham-Maywood Telephone Co., Durham, to the Mark Twain Rural Telephone Co., Bethel (TELEPHONY, July 2).

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Also in Missouri, the commission on July 21 heard the application of the Bolivar Telephone Co. for a certificate of convenience and necessity to serve the area now served by the Stockton Mutual Telephone Co., which Bolivar Telephone plans to purchase.

Two Rate Hearings in Wis.

The Wisconsin Public Service Commission was to have held hearings on July 20 and 22 on the rate applications of the Independence Telephone Co. and of the Norwalk Independent Telephone Co. respectively.

Approve 3 Revised Rate Schedules in Minnesota

The Minnesota Railroad & Warehouse Commission on July 11 authorized rate increases for three companies, the Twin Valley-Ulen Telephone Co., Twin Valley; Gardonville Cooperative Telephone Association, Brandon; and the Park Region Mutual Telephone Co., Underwood.

The Twin Valley company, whose exchanges at Twin Valley, Waubun, Gary, Flom and Ulen are dial, expects, with REA funds, to convert its Ogema exchange also to dial. Presently serving 1,179 stations, the company expects to be serving 1,411 when an improvement program is complete.

The Twin Valley company had shown current net income as $16,226. The commission approved a general rate increase designed to yield a net income of $26,709 which on a current value rate base of $718,000 will give the company a 3.71 per cent return. Under current rates, the company receives a 2.25 per cent return.

The following schedule of rates was approved effective on conversion of the Ogema exchange:

	Ulen	Twin Valley, Gary, Flom, Ogema	Waubun
One-party business	$7.50	$8.50	$9.50
Two-party business	6.50	7.50	8.50
Five-party business (Flom only)		7.50	8.50
Rural multi-party business	6.00	7.00	8.00
One-party residence	5.75	6.00	6.75
Two-party residence	5.00		
Four-party residence	4.25	4.75	5.50
Five-Party residence (Flom only)		4.75	5.50
Rural multi-party residence	5.00	5.50	6.00

•

The Gardonville Cooperative Telephone Association, Brandon, in its rate request had shown current net income of $383. The company, with the aid of REA funds, is rehabilitating its Garfield exchange by rebuilding its outside

plant, enlarging the switchboard and adapting it for Direct Distance Dialing. The company serves 1,072 stations.

The Minnesota commission made a current value allowance of $35,000 on the company's $534,937 rate base, and approved a rate schedule designed to yield net income of $16,049.

The ratio of net income to the rate base will be 3 per cent under the new schedule, as compared with the current return of 0.71 per cent.

The schedule of dial rates, present and approved after completion of rehabilitation at the Garfield exchange, is shown as follows:

	Present	Approved
One-party business	$5.25	$6.25
Two-party business	4.75	5.75
Four-party business		5.25
Rural multi-party business	4.25	5.25
One-party residence	3.75	4.50
Two-party residence	3.25	3.75
Four-party residence	3.00	3.25
Rural multi-party residence	3.75	4.25

•

Park Region Mutual Telephone Co., Underwood, requested a rate revision for all its exchanges and a new schedule of dial rates for its Ashby exchange, which is being rehabilitated with the aid of an REA loan. The Park Region company, when its improvements are complete, expects to serve a total of 1,466 stations.

The company showed a net income of $19,179. The commission made a current value allowance of $62,114, and took into consideration the cost of plant additions made since 1952. It authorized a new rate schedule designed to yield net income of $30,587. Under present rates, return on the rate base of $733,241 is 2.61 per cent. The rate of return under the approved rates will be 4.17 per cent.

The Park Region Mutual Co.'s old and new rates are as follows:

	Ashby (current)	Dalton, Maine Erhard, Vining Underwood, (old, dial)	Approved dial rates for all including Ashby
Business:			
One-party	$3.50*	$6.00	$6.75
Two-party	3.00	5.00	6.00
Rural multi-party	—	4.25	6.00
Residence:			
One-party	2.75*	4.25	4.50
Two-party	2.50	3.75	4.00
Four-party	2.25	3.25	3.50
Multi-party	2.00	—	—
Rural multi-party	—	3.75	4.00

*Common battery

OK Service by Bell in Tenn.

The Tennessee Public Service Commission has approved the request of Southern Bell Telephone & Telegraph Co. to serve the territory formerly served by the Lascassas Mutual Home Telephone Co., according to W. D. Hall, Lascassas company president.

Mo. Mutual Asks Rehearing Of Territory Transfer

The Humphreys Telephone Exchange on July 19 petitioned the Missouri Public Service Commission for a rehearing of the permission granted Grand River Mutual Telephone Corp. to serve subscribers in and around Humphreys (TELEPHONY, July 16).

Humphreys Telephone Exchange is a mutual company not subject to commission regulation; thus, the commission stated in the order being appealed, its area must be considered uncertificated and open to any qualified public utility.

It is reported that witnesses at a previous commission hearing testified as to the inadequacy of Humphreys Telephone Exchange service and stated they desired better service.

It is also understood that 70 per cent of the telephone users in the Humphreys area requested in a written petition that Grand River provide them with dial service.

Order Expansion into Ill. Company's Area Stopped

Illinois Circuit Court Judge William C. Radliff on July 11 issued a temporary injunction ordering the Inland Telephone Co., Champaign, to stop construction of facilities and to stop providing service to subscribers of the Cooksville Telephone Co.

The Cooksville company also has asked for $10,000 in damages from the Inland company for loss of revenue.

Cooksville spokesmen told the court that six subscribers on the west edge of its territory are now being served by Inland's Towanda exchange and that Inland is attempting to connect three more Cooksville subscribers to Towanda.

Bernard Grimes, attorney for Cooksville Telephone, on July 11 also lodged a complaint against Inland with the Illinois Commerce Commission.

He said that under state law, Inland could not enter territory granted to Cooksville unless it had first received a certificate of convenience and necessity from the ICC.

Residents of this section, the Merna area of Cooksville's territory, are reported to have complained about service.

Merle Douglas, president, and Thurman Bliss, vice president of the Cooksville company have stated that work is going forward to modernize the exchange. A recent rate increase was obtained for this purpose.

Allow Construction Charges, Foreign Service in Neb.

The Lincoln Telephone & Telegraph Co. was authorized on July 13 by the Nebraska Railway Commission to establish an excess construction charge of $100 each for members of the Solon Telephone Co., who wish to be connected as subscribers on the Lincoln company's Douglas exchange. Heretofore they have received switching service.

Each member must also agree to retain service for a minimum of three years, and the $100 construction charge will apply for the next five years for new subscribers.

The Lincoln company was also authorized to provide service from its Syracuse exchange to a subscriber requesting this service who is presently served from the Avoca exchange of the Farmers Mutual Telephone Co.

Florida Commission to Investigate SBT&T Earnings

The Florida Railroad & Public Utilities Commission has set a Sept. 27 hearing date on an investigation into Southern Bell Telephone & Telegraph Co.'s rates, which the commission has instituted under its own motion.

In its order of July 20, the commission said that records available to it have shown that Southern Bell is "earning in excess of 7 per cent on the reasonable value of its property . . . (and) there appears to be no justification for the continued maintenance of rates and charges which will produce such a return."

The order also stated that the commission gave notice in April 1958 that "in all future telephone rate cases the plant and components making up the rate base, operating revenues and expenses, must be separated between interstate toll, intrastate toll and exchange service."

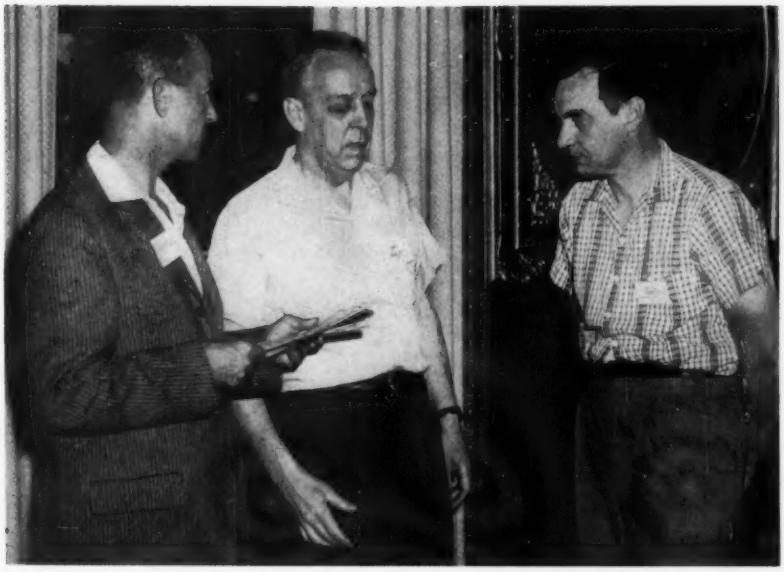
The commission said that the investigation into Southern Bell's earnings was for the purpose of "fixing such rates and charges for local exchange telephone service and for intrastate toll service . . . as will be fair, just and reasonable. . ."

OK 3 Service Transfers, Dial Rates, Tolls, in Kan.

The Kansas Corporation Commission on July 13 approved three service transfers as follows:

The newly incorporated M&W Telephone Co., Inc., Whiting, (TELEPHONY, June 11) was granted permission to serve Whiting and Muscotah.

At the same time, Farmers Mutual Telephone Co., Whiting, and Atchison County Mutual Telephone Co., Mus-



Ernest D. North, center, general attorney, Long Lines Department, American Telephone & Telegraph Co., and Harvey J. McMains, right, chief engineer, Oklahoma Area, Southwestern Bell Telephone Co., attending the 16th session of Columbia University's Executive Program in Business Administration, which was held from June 12 to July 23. Here they talk things over with Hoke S. Simpson, left, director of the program. Now in its ninth year, the executive program, part of the Graduate School of Business, is a six-week course of study for senior executives representing diverse industries. Director Simpson describes it as "a concentrated short-term program covering problems in internal administration, economic forces affecting business leadership, and effective executive action." The program is conducted twice each year at Arden House on the Harriman Campus of Columbia University, 50 miles north of New York City.

cotah, were allowed to cease doing business.

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The KanOkla Telephone Association, Inc., Anthony, was authorized to serve the Danville exchange. The Danville Rural Telephone Co. was given permission to go out of business.

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The Gorham Telephone Co. was given an okay to serve Natoma and Waldo, formerly served by the Natoma Central Telephone Co., whose petition to cease doing business was also approved.

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In other actions, the Kansas commission granted interim dial rates for the Sunflower Telephone Co., Inc., Dodge City, at its Sharon Springs, Wallace and Weskan exchanges.

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The commission also allowed the United Telephone Co. of Kansas, Inc., Abilene, to cease providing extended area service and to charge tolls on calls between its Westmoreland exchange and the Wheaton exchange of Blue Valley Telephone Co., Vermillion; its Kincaid exchange and the Blue Mound exchange of the Pleasanton Telephone Co., and between its Kincaid exchange and the Bush City exchange of the Bush City Telephone Co.

Hold Hearing on Rate Petition in Vermont

Public hearings before the Vermont Public Service Commission were to be opened on July 12 on the application of the Southern Vermont Telephone Co., Bridgewater, request for a rate increase. Commission Chairman Charles R. Ross stated that the hearing was to be restricted to the rate petition only, not to the question of service (TELEPHONY, July 23).

Southern Vermont has about 227 subscribers in Bridgewater, Sherburne and Plymouth.

Neb. Finance—Rate Request

A hearing was to have been held on July 29 by the Nebraska Railway Commission on the application of the Benkelman Telephone Co. to issue $75,000 in first mortgage, 6 per cent bonds and to adjust rates and charges for service (TELEPHONY, July 2). The company proposes to convert the Benkelman exchange to dial operation.

State, Utah Companies Agree On Line Relocation Costs

Lawyers representing the state of Utah and utility companies have agreed to a plan for meeting a Utah Highway Department problem of who should pay for relocation of utilities when highway projects force pipelines, power lines and telephone lines to move.

The issue stems from a 1957 law passed by the state legislature and the 1956 Federal Aid Highway Act (TELEPHONY, Mar. 16, 1957). Constitutionality of the state law was upheld by the state supreme court. It earlier had been ruled unconstitutional by the state attorney general.

The law provides that the state shall participate in the costs of relocating utilities where the federal government contributes its share of the cost.

State and company counsel agreed orally on how to determine whether the utility or the state shall pay for relocation, as follows:

On utility lines authorized before May 14, 1957, the effective date of the 1957 act, any subsequent realignment shall be paid by the utility, if that was part of the original agreement.

On utility lines authorized before May 14, 1957, but where the agreement was silent on relocation costs, the state will pay.

When permits for installation of utilities have been issued after May 14, 1957, the state shall pay for relocation, as long as the federal and state laws are in effect.

Assistant State Attorney General Franklyn B. Matheson said the new agreement would permit release of a large backlog of utility location permits. State Attorney General Walter L. Budge said the agreement would be incorporated in all future compacts.

Subscribers Asked to Vote On Service for Kansas Town

Telephone subscribers in Columbus, Kan., were scheduled to vote on July 19 to indicate their choice of whether they wished the Craw-Kan Telephone Association, Girard, or the Columbus Local Telephone Co. to serve the city (TELEPHONY, May 7).

The area is presently served by the Cherokee County Mutual Telephone Association which has applied to discontinue service.

The election was ordered by the Kansas Corporation Commission after representatives of both the Craw-Kan association and the Columbus company asked the commission to decide which company should serve the city.

The commission has stated that it will not be bound by the vote. Under

Kansas law, the commission has the power to give the franchise for service to the company of its choice.

"We have never gone against the wishes of the persons involved," a commission spokesman said, "but we are here to see that justice is done."

SW Bell Gets OK to Buy Seven Arkansas Exchanges

Southwestern Bell Telephone Co. on July 11 was given permission by the Arkansas Public Service Commission to purchase seven exchanges from the Union Telephone Co., Smackover (TELEPHONY, July 16).

These exchanges are Smackover, Calion, Norphlet, Urbana, Mount Holly, Chidester and Village.

Gives Opinion Marriage By Telephone Is Legal

Atty. Gen. Albertis Harrison of Virginia reportedly has said marriage by long distance telephone apparently is legal, even when the bride and groom are separated by the Atlantic ocean.

His opinion was given to Garnett Moore of Pulaski, Va., who asked in behalf of an airman whose marriage to a French girl by telephone was ruled illegal by the air force.

Mr. Harrison found no statutory requirement that the bride and groom be in the presence of each other.

Carolina T&T Asks Base Rate Extension in N. C.

The Carolina Telephone & Telegraph Co., Tarboro, on July 18 asked the North Carolina Utilities Commission for authority to extend base rate areas and reclassify some of its exchanges.

The company asks extension of base rate areas for 15 of its 111 exchanges and increased monthly basic rates at 17 exchanges.

Vice President J. F. Havens said "These adjustments will not produce any net income increase in the revenue for the company" but "are designed to make an orderly and equitable adjustment for the growth, which many communities in eastern North Carolina have experienced."

Mr. Havens said some subscribers would have small increases in their bills while others would receive small reductions if the changes are approved. He said extension of base rate areas for the 15 exchanges would mean "a reduction, and in some cases, elimination of monthly mileage charges now being paid" by subscribers of these exchanges.

The exchanges in which base rate areas would be extended, resulting in elimination of mileage charges for 18,000 customers are:

Beaufort, Clinton, Fayetteville, Greenville, Henderson, Jacksonville, Kinston, Morehead City, New Bern, Oxford, Rocky Mount, Tarboro, Washington, Williamston, and Wilson.

Exchanges in which monthly basic rates would be increased are:

Ahoskie, Benson, Columbia, Dunn, Fayetteville, Grifton, Henderson, Jacksonville, Oxford, Pinetops, Raeford, Rocky Mount, St. Pauls, Smithfield, Snow Hill, Swansboro, and Tabor City.

Mr. Havens said that in six exchanges where monthly rates would be raised many customers would have an offsetting reduction as a result of extension of base rate areas, reducing or eliminating mileage charges they now are paying. These exchanges include Fayetteville, Henderson, Jacksonville, Oxford, Rocky Mount, and Smithfield.

AT&T Authorizes Debenture Bond Issue of $250 Million

Directors of American Telephone & Telegraph Co. on July 20 authorized a new debenture bond issue of 250 million dollars to be offered at competitive bidding.

It is expected that bids will be opened on Oct. 25. The trustee will be the Morgan Guaranty Trust Co. of New York.

The last debt issue of this kind offered by the company was on Nov. 17, 1959 when a 250 million-dollar issue was sold. Proceeds of the new issue will be used for the improvement and expansion of Bell telephone services.

John P. Boylan, Independent Pioneer, Dies in Rochester

John P. Boylan, 67-year veteran of the telephone industry, died at his home in Rochester, N.Y. on July 18. Mr. Boylan was 84.

Mr. Boylan was a long time executive of the Rochester (N.Y.) Telephone Corp., one of the largest Independent telephone companies in the nation.

Mr. Boylan began his long career in the telephone industry in 1892 when he joined the old Cleveland (O.) Telephone Co. as stock clerk. He remained with the Cleveland company in various capacities for 12 years.

After spending several years as telephone engineer for telephone companies in the midwest, Mr. Boylan became vice president and general manager of the Mountain Home Telephone Co. of Prattsburg, N.Y.

He went to Rochester in 1921, where he joined the Rochester Telephone Corp. He became president of the

J. P. BOYLAN

Rochester company in 1927, and remained in that position until Jan. 1, 1946, when he was elected chairman of the board. He retired from the latter position in April, 1959.

During his career with the Rochester company, Mr. Boylan was actively engaged in telephone association affairs. He was a director of the United States Independent Telephone Association from 1937 to 1946, and was its president in 1944-45. He served as director and president of the New York State Telephone Association. He was also a member of the Independent Telephone Pioneer Association and of the Telephone Pioneers of America.

The city of Rochester owes much to Mr. Boylan for his leadership in many civic organizations and undertakings which resulted in placing Rochester among the most progressive cities in the United States.

Mr. Boylan is survived by three children: Mary E. Boylan of New York City; Alfred G. Boylan of Pittsford, N.Y.; and Dr. John W. Boylan of Buffalo, N.Y.; and by nine grandchildren.

England-Sweden Cable

A 584-mile telecommunications cable, reported to be Europe's longest, connecting Middlesbrough, England, and Gotenburg, Sweden, was completed during the week of June 20. The coaxial cable can convey 60 connections at a time. Its cost is 1,700,000 pounds (approximately $4,770,000), one-half of which was paid by each of the two countries.

Ask Purchase OK in Neb.

The Nebraska Railway Commission on July 12 was to have heard the application of the Wilcox Telephone Co. to purchase the Farmers & Merchants Telephone Co., Ragan.

Communication Satellites By 1970; Frequencies Problem

World-wide commercial communications through a series of "stationary" satellites that re-broadcast ground signals "will be technically and economically feasible by 1970," Dr. Edwin G. Schneider, vice president, research and engineering, Sylvania Electric Products Inc., said on July 17.

By orbiting some 22,000 miles above the equator in the same direction, and at the same speed as the earth's rotation, each of the "stationary" satellites would hover over a single ground point. This would permit the relaying of global television programs, from continent to continent, as well as the transmitting of hundreds of telephone and telegraph messages, and such information as high-speed facsimile and high-speed digital data, Dr. Schneider said.

Questions of world frequency allocations and international law must first be resolved, however, before such a system—the most practical for commercial use—could be implemented, he said.

Engaged in advanced electronics and space programs, the Sylvania Electronic Systems has over-all systems management responsibility for the GT&E Corp.'s government projects.

Dr. Schneider's remarks came in conjunction with a statement filed with the Federal Communications Commission on "allocation of frequencies in the bands above 890 megacycles." He was also scheduled to testify on behalf of GT&E at FCC proceedings on the subject.

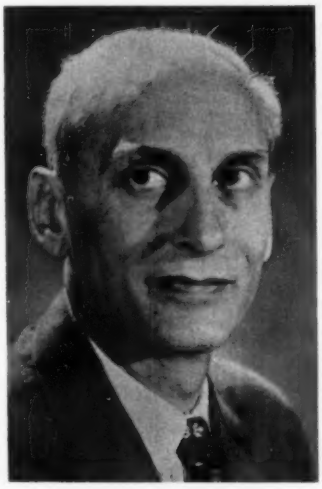
A former member of the technical advisory group of the Guided Missile Committee of the Department of Defense's Research & Development board, Dr. Schneider is presently chairman of the advisory group on radar to the Assistant Defense Secretary for Research & Development.

In addition to the need for allocation of frequencies for commercial earth-space-earth communication systems—such as the "stationary" satellite network, Dr. Schneider pointed out additional requirements will be raised by commercial inter-continental and trans-continental travel in space vehicles. Such travel may be initiated during the 1970's, he said.

Because of future commercial and military space communication requirements, the Sylvania scientist urged that the FCC reserve a "substantial number of frequency bands in the region between 890 megacycles and 10,000 megacycles for future use by space communication systems.

"It is recognized that such channels will have to be agreed upon on an international basis because one of the major uses will be intercontinental communications, and, furthermore, signals from high-altitude space vehicles will often be propagated beyond national boundaries, even though they are used for communication within the national boundaries," Dr. Schneider said.

He continued, "It also will be necessary to resolve a number of legal questions involving rights and liabilities of a private corporation in placing a satellite in space. For example, what permission must be obtained to place a satellite over a sovereign territory, and what liability exists if the satellite fails fully to achieve its assigned orbit?



DR. E. G. SCHNEIDER

"It is, therefore, recommended that the United States take a strong stand at the Extraordinary Administrative Radio Conference of the International Telecommunications Union, scheduled for 1963, in favor of reserving adequate frequencies for earth-space-earth common carrier and private communications to permit several broad-band channels for transmission of such information as television, high-speed facsimile and high-speed digital data and to permit ultimate assignment of more than 1,000 voice channels which might alternately in part be assigned for teletype usage.

"It is further recommended that the details of such frequency assignments be worked out through the United States participation in Study Group IV (Space Telecommunications) of the International Radio Consultative Committee," Dr. Schneider summarized.

Purposes cited by the Sylvania vice president, to be served by future space communication systems, include:

(1) World-wide weather observation.

(2) Certain forms of military reconnaissance.

(3) Man-made "celestial" navigation system.

(4) Intercontinental transmission of broad band signals such as television, high-speed facsimile and high data rates for digital data.

(5) Communication to manned space vehicles.

(6) Scientific exploration of space.

(7) Space warfare.

Will Build Direct U.S.-G.B. Cable, AT&T Announces

American Telephone & Telegraph Co. has announced plans for a new trans-atlantic telephone cable between the United States and Great Britain. It will be the first telephone cable direct from the United States across the Atlantic.

The system is scheduled to be built in 1963 at an estimated cost of 35 million dollars. It will be owned jointly by AT&T and the British Post Office, which is responsible for telephone service in the United Kingdom.

Cable and amplifying equipment of an entirely new design will give the system greater range and circuit capacity than any of the present oceanic cables.

The Long Lines Department of AT&T said it would be a single cable system, designed for two-way transmission, stretching some 3,400 nautical miles directly from the shores of the United States to the United Kingdom. It will provide initially the equivalent of 128 voice-grade circuits—more than three times the initial capacity of the first transatlantic telephone cable system placed in service four years ago.

Long Lines, which with the British Post Office will jointly construct and lay the cable, said landing sites have not yet been selected.

A new type of submarine telephone cable will be used. It gets its strength from a steel wire core and does not require the armoring used in previous deep-sea cables.

New "repeaters," or amplifiers, developed by Bell Telephone Laboratories, will be spaced about 22 miles apart over the cable route. Each repeater contains more than 500 different parts, including vacuum tube amplifiers and directional filters to permit two-way conversations over the single cable.

Two other transatlantic telephone cable systems are presently in operation via Newfoundland, one to the United Kingdom and the other to the continent of Europe.

Character Stands

"Be your character what it will, it will be known; and nobody will take it upon your word."—CHESTERFIELD.

News on New Products

EDITOR'S NOTE: What with Ray Blain's "Annual Review of New Products and Techniques" (Part 8 in this issue) and this "News on New Products" department, we are devoting a considerable proportion of editorial space to new products.

TELEPHONY feels it's important to summarize the year's progress in equipment development, and simultaneously report current new products because of their potential impact on the operations of telephone companies. The entry of more and more manufacturers into the telephone field due to expanding communication techniques demands that more space be given to new developments. Following is the most recent news on new products:

BUSINESS TELEPHONE WITH INTERCOM — The Automatic Electric Co. announces a new business communications tool, the Call Commander telephone, plus new intercom services.

The company states these two features expand its 10-A1 key system, a complete pushbutton telephone network.

The Call Commander—a multi-line telephone equipped with a maximum of 18 pushbuttons for outside line and intercom service—gives the businessman three times the number of buttons offered by standard key telephones.

By the push of a button, the user can have access to as many as 18 central office or PBX lines. The pushbutton operation also will hold up to 17 central office or PBX lines, according to AE.

The Call Commander telephone permits several methods of signaling, including code and selective (either dial or pushbutton-controlled) for intercom stations. Lighted plastic pushbuttons serve as line signals.

The telephone is available in jade green and sand beige with a choice of five contrasting color face plates. Request NP1364.

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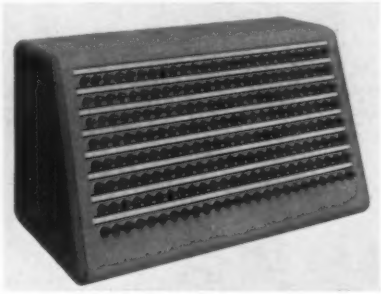
"MESSAGE WAITING" SERVICE—Getting messages to busy hotel guests—a time-consuming chore—can now be handled by a new telephone service



provided by Automatic Electric. The "message waiting" service features a flashing lamp on the guest's room telephone which informs him that a message is on hand at the PABX switchboard. The lamp is triggered by the mere turn of a key.

In small hotels, AE explains, the locking turn-keys are mounted on the switchboard, one key for each telephone.

In larger establishments, the PABX attendant may be freed of handling "message waiting" calls by a special Message Service Control unit. The compact cabinet contains keys for 100 or 200 telephones. Additional units may be provided when more than 200 telephones are to be served.

When the PABX attendant receives a request to deliver a message, the lamp on the guest's telephone may be activated, or the call routed to the Message Service Control Unit. By calling a designated number, or the message service clerk, the guest receives his message.

AE also points out that its "message waiting" service does not affect normal telephone service, for the guest may answer incoming calls or place outside calls. To stop the flashing light, however, he must call the attendant, who restores the turn-key to the non-operated position.

The control unit is available in grey, with designation strips for room numbers. Message Service Telephones can be had in black, and 10 colors. Request NP1365.

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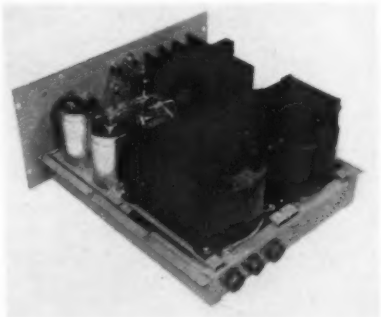
POWER SUPPLIES—North Electric Co. has announced a new line of power supplies. North says these are designed

(Continued on page 39)



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Advertisement

When it's "Dial or Die"

What would you do with a 27-station company?

Fold up? Commissions frown on this, for subscribers—no matter how few—have a right to be served.

Consolidate? This requires other subscribers so situated that the merger becomes attractive as well as possible.

Sell out? First you must find a buyer . . . and when you're talking about 27 stations, this has to be the kind of person who can look at a barren field and see a garden growing.

Does this kind of buyer exist only in stories — the philanthropist who likes to make people happy with money he'll never miss? Certainly this was *not* the case when Howard Kendall of Mullinville, Kansas, recently took over a 27-station company. He is a careful businessman; he expects to make a fair return on his investment. Stromberg-Carlson has made it possible.

New approach to small C.D.O.

Last winter Mr. Kendall learned of two small Kansas towns, Beaumont and Piedmont, where the telephone exchanges could be classed as "distress merchandise." This aroused curiosity, but little enthusiasm.

At about the same time he was told of an entirely new approach to the really small C.D.O. being designed by Stromberg-Carlson—a complete XY® Dial office that could be proved in with an incredibly small number of stations. This new switchboard could make the difference. He called in an engineering firm, decided to look over the properties.

Can you serve us, too?

While in Piedmont he was contacted by the directors of a discouraged mutual, some 15 miles away by farm roads; if he should decide to acquire Beaumont and Piedmont, would he take their company also—give them a sorely needed new plant and dial service? It shouldn't be too hard, as there were only 27 now being served!

The next day Mr. Kendall drove over. On the way the Stromberg-Carlson Credit Corp. field engineer reviewed the features of the new, small C.D.O. that could make just such an uninviting prospect feasible.

Like the compact car

"It took Detroit quite a while to realize that a lot of people didn't really want or need big cars," said Mark, the engineer.

"Right," said Mr. Kendall. "A friend of mine bought a compact car so he wouldn't have to rebuild his garage."

"Lower first cost, too, I'm sure."

"True, and every day he saves money on operating expense."

"That's like our new XY Switchboard—the *COMPAK-I.* Maybe Detroit could ask us telephone equipment manufacturers why nobody thought of making a switchboard like this until now."

Top photo: In its day this was a pole line serving the village of Piedmont. Howard Kendall wonders what can be salvaged.

Manager's son Paul stands beside typical pole —osage orange sharpened to accommodate insulators. Cattle are also typical of this range country.

The new exchange building at Beaumont starts to rise as Bob Wells and Irving Coates finish pouring slab.

This switchboard—COMPAK-I—makes a really small dial office a financial possibility.

Then Mark went over the design objectives given to the engineers. The new board had to be:

XY® Dial in general function and quality, offering up to 100 lines;

a packaged unit that could be shipped from stock, yet flexible enough to meet every normal type of exchange requirement;

small in size (actually it's only 5′ 2″ high and 7′ long including power and MDF), light in weight (530 lbs., basic unit crated for shipment);

easy to install, maintain, add lines to meet growth;

built to sell at a price lower than any equipment now available for comparable use.

All of these objectives were met in the COMPAK-I.

Howard Kendall

Too far to reach out

As they drove along, the two men could easily see why no one had tried to consolidate these towns into one exchange—it was mostly range land. Obviously, then, the town where they were going—Reece—would have to be proved in as a separate office, or the whole idea dropped.

Word of their coming must have spread, for they were met by a group that was well representative of the town. These people were eager to have improved telephone service; what was more important, many who had no service at all were anxious to get it. Mr. Kendall mentally began to add new subscribers to the 27 figure and multiply this by the usual rate for dial service. The field engineer's computation was a little more complicated: gross revenue vs. operating expenses, interest and principal requirements for the C.D.O., station apparatus and fixed plant.

"I think I can show you figures that will surprise you," he said after a while. "But I'll have to do a lot more checking first."

There was a lot of cold, hard thinking on the return trip. And plenty of work in the intervening months. But when next winter blows in across the Kansas range lands, all three towns will be enjoying XY Dial service from its own individual dial switchboard, and Mr. Kendall will be realizing an additional net return from these operations for the parent company.

When it's "Dial or Die"

The XY Dial switchboard, "COMPAK-I," has become available just as hundreds of small companies find themselves forced by today's economics to go dial or go out of business. Without such a switchboard, the prospect, in many cases, would be grim. With the economies that the Stromberg-Carlson COMPAK-I realizes in building costs, equipment, installation, maintenance, and overhead, a dial conversion can be justified right now. The future will look better year by year, as the costs of manual operation and maintaining obsolete equipment continue to soar.

A barrel ride contest on Squier Ranch near Beaumont draws the nation's best horsemen.

The story of Reece, Kansas, will be repeated many times, as shown by the increased demand for the COMPAK-I. Orders now in work prove the wide range of its application—as a really small C.D.O., as a satellite exchange, as a better solution than concentrating equipment because it offers a great deal more flexibility.

If this switchboard can be proved in for a 27-station company, don't you think you, too, should investigate its possibilities?

"The Crew." Irving Coates; Bob Wells, former owner of Piedmont exchange; Paul Kendall, and his dad, Howard.

for efficiency and with a degree of precision response and regulation hitherto available only in power sources of much greater size and complexity.

Solid state devices are employed throughout these power supplies for maximum power conversion efficiency and minimum weight, according to the manufacturer. Weighing 150 pounds and measuring 19 inches wide, 8¾ inches high and 20 inches deep, the units are available for rack, frame or drawer mounting. Ratings are:

Output voltage — 60v. (Can be manufactured for any voltage, up to 3kw power output).

Output current — Up to 10 amperes.

Regulation—0.6 per cent of output voltage for all changes. ± 10 per cent line voltage. 0 to full load current. 0 degrees c to 50 degrees c.

Noise and ripple—0.3 per cent.

Response time—25 ms with ± 50 per cent change in load. (Under these conditions, output voltage remains within the regulation specified.)

Output impedance—DC: .035 ohms. AC: 5.3 ohms.

Ambient temperature range—0 degrees to 50 degrees.

Overload protection — Voltage shuts off at predetermined overload current up to 12 amperes. Either manual or automatic reset available.

Input frequency range—48 to 62 cycles at 115v or 230v ac.

Request NP1366.

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AUDIO CLINICS — Recent developments and new products in the field of sound systems were presented to 291 sound contractors at the nation-wide 1960 Audio Clinics held during June by Altec Lansing Corp.

Conducted by Edward S. Seeley, director of central engineering for Altec, the Audio Clinics, which are held annually, convened in Chicago, New York, Atlanta, Dallas and Anaheim, Cal.

Among subjects covered in the 1960 clinics were loss in telephone cable circuits, sound system power requirements, zone volume controls, and geometrical projection of areas covered by horn beams. Surveillance systems were also discussed.

The new Altec 250 SU control console, the Altec microphone line and the Altec lease-financing plan were explained.

According to Mr. Seeley, the Altec Audio Clinics will be conducted again next year around the same time. For further information on these clinics, request NP1367.

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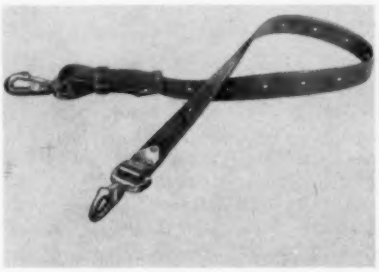
NYLON SAFETY STRAPS—Mathias Klein & Sons has announced the development of new "Klein-Kord" Nylon Safety Straps. These straps are woven from filament nylon and, according to the manufacturer, stretch has been almost eliminated. They are flexible and stronger, Klein says.

When tested in use, the manufacturer states, they are capable of test load of 2750 pounds.



The multiple plies of pre-dipped nylon are frictionized in neoprene and vulcanized. Klein reports it drop-forges all buckles and snaps.

The straps are available in 6 foot, 6 foot 6 inch, 7 foot and 8 foot lengths. Request NP1368.

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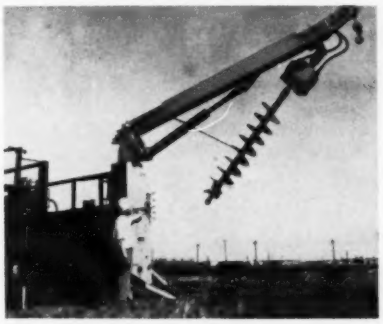
TURRETT DERRICK—A universal turret derrick unit with full 360 degrees rotation, three mounting positions for



line bodies and optional equipment including hydraulic digger and Fiberglas one-man basket is now in production, Truck Equipment Co. has reported.

Known as the Model 8-TTD-30-U, the derrick will mount at right rear, left rear or behind the cab in 16 feet of space. All controls are unitized into the base, the company states, giving the operator full visibility and fast response of controls from one location.

Box type heavy duty steel booms telescope in two sections to give a 21½-foot extended working radius. Maximum capacity is said to be rated safely at 8,000 pounds.

A special engineering feature, the company states, is that the operator may stow and unstow the auger automatically and use the hydraulic digger with either boom section. Derrick

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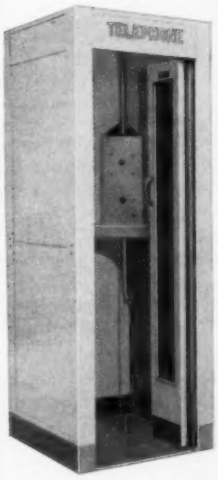

SUTTLE's A-10S full length steel telephone booth features heavy gauge steel construction, choice of many baked enamel interior and exterior finishes. Sturdy, long-lasting construction. An excellent buy with many extras other booths do not have. Write for free literature today on full booth line!

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has 30-foot sheave height. Request NP1369.

•

SELF-PROPELLED TRENCHER—A new, self-propelled trencher, the Trench-Devil L-12, has been announced by the Arps Corp. All types of trenching applications can be handled, Arps states, by the one-man operated unit, such as telephone and electrical cable, foundations, and signal systems.

The machine weighs approximately 1460 pounds and is capable of digging depths of 2½ feet, 3½ feet, 4½ feet, and 5½ feet, with chisel or slicer cutters available for digging widths of 4 inches, 6 inches, 8 inches, 10 inches, and 12 inches. Digging speed is variable, according to the company, from 0 to 1200 feet per hour in forward or reverse. Mechanical transmission operated by key controls on each side of machine regulates infinite forward and reverse digging speeds.

A rubber-belted conveyor which deposits dirt on either side of the trench is said to insure positive, straight line trenching. The conveyor can be detached and installed from one side to the other within 60 seconds, Arps reports. Adjustable deflector controls distance dirt is deposited from edge of trench. Request NP1370.

•

TEN-WATT SPEAKER—General Electric's Communication Products Department has introduced a new 10-watt speaker for use with its Transistorized Progress Line two-way radio equipment. The company says the new speaker uses 90 per cent less battery power than a typical transistorized five-watt unit while delivering twice as much audio.

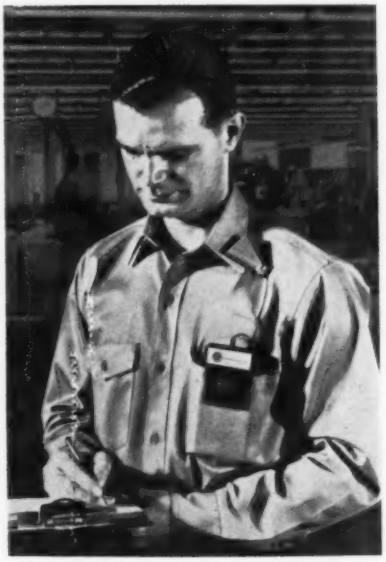
The new equipment is described as easily detachable from mounting brackets at the dash of a car and may be hung on the car's window so that messages may be heard by a driver who is outside the vehicle.

GE says that the new speaker provides higher sound level for applications where prevailing noise conditions override the standard speaker's output, such as when the operator is required to be at some distance from his vehicle periodically. Request NP1371.

•

TRANSISTORIZED POCKET RECEIVER—G-E's Communication Products Department also has introduced a new all-transistorized shirt-pocket personal radio communications receiver with miniaturized circuitry that is said to boost audio efficiency and require 35 per cent less battery power than previous hand-carrier message equipment of its type.

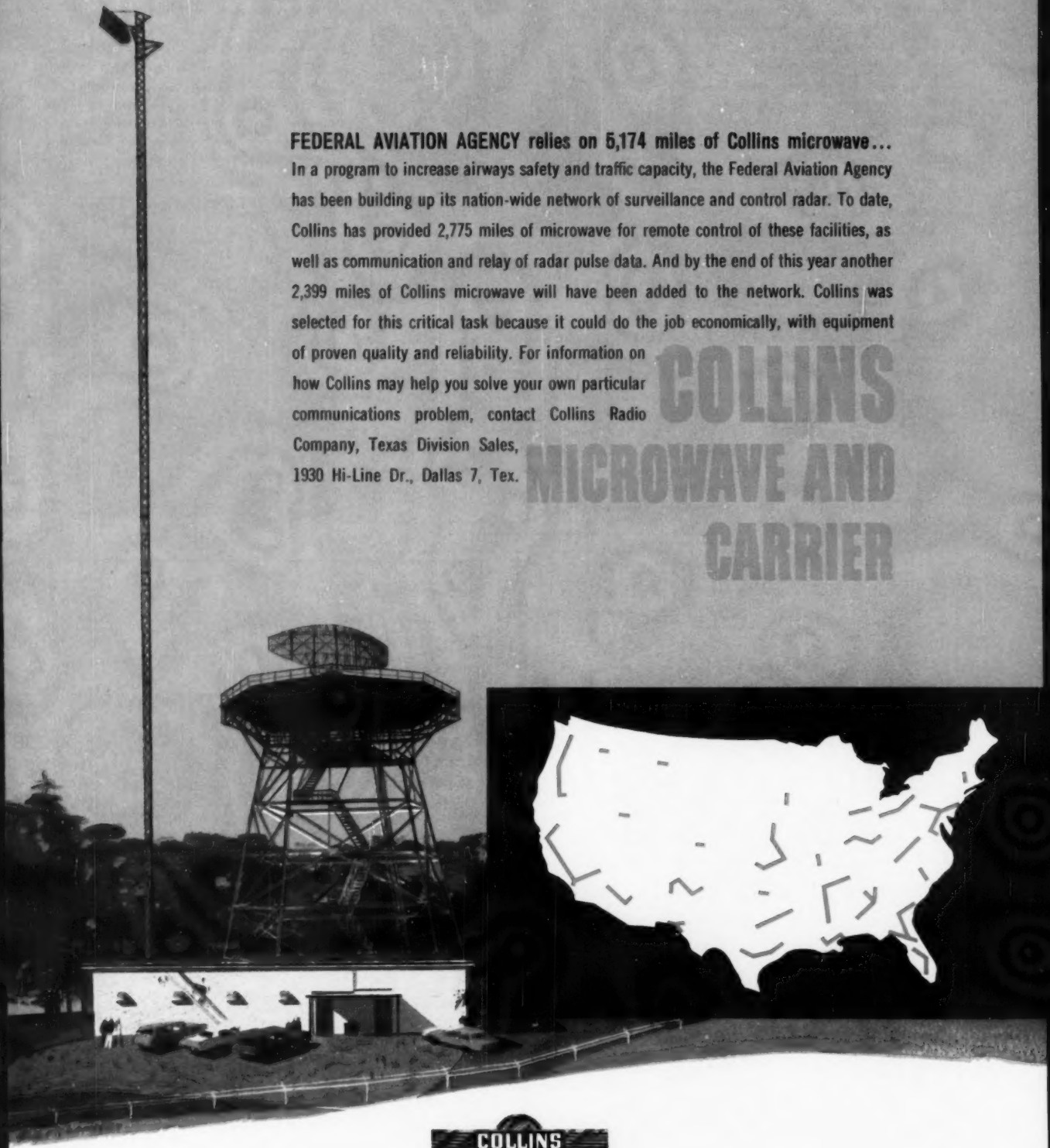
Named "Voice Director," it weighs 12 ounces with battery. The device is



FEDERAL AVIATION AGENCY relies on 5,174 miles of Collins microwave...

In a program to increase airways safety and traffic capacity, the Federal Aviation Agency has been building up its nation-wide network of surveillance and control radar. To date, Collins has provided 2,775 miles of microwave for remote control of these facilities, as well as communication and relay of radar pulse data. And by the end of this year another 2,399 miles of Collins microwave will have been added to the network. Collins was selected for this critical task because it could do the job economically, with equipment of proven quality and reliability. For information on how Collins may help you solve your own particular communications problem, contact Collins Radio Company, Texas Division Sales, 1930 Hi-Line Dr., Dallas 7, Tex.

COLLINS MICROWAVE AND CARRIER



COLLINS

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said by G-E to have receiver selectivity and receiver sensitivity comparable to mobile radios many times heavier and larger.

When on standby, the Voice Director uses 32.5 milliwatts (five milliamperes at 6½ volts), the company reports. While a message is being received, the power drain is 58.5 milliwatts.

Designed for indoor and outdoor voice-paging, the new equipment is engineered so the person wearing it may be contacted instantly by a base station transmitter, a two-way radio in a car, or by a portable unit operating on the same frequency. Initially, frequencies in the 150-174 mc. range will be used. Request NP1372.

•

PORTABLE TWO-WAY RADIO—Also announced by G-E's Communication Products Department is a portable two-way radio which can be recharged by using a car's cigarette lighter or an electrical outlet. Key to the re-charging is a built-in battery charger used with a 12-volt dc vehicular system or 117 volt ac.

A rechargeable nickel cadmium power supply is reported to save battery replacement costs and enable the portable to be placed on constant

charge while awaiting use. The equipment may be charged thousands of times, G-E says, without battery damage.

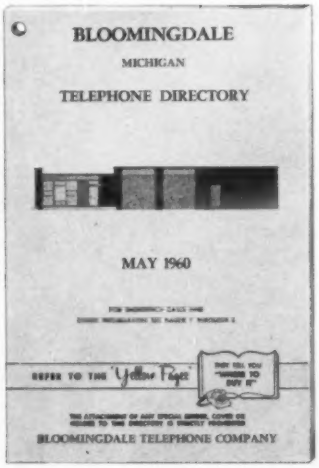
This new unit contains an all-transistorized receiver. It can be operated in the 25-54 mc. and 144-174 mc. frequencies, for transmission to vehicular two-way radios, pocket units, or portable-to-portable.

Where no outlet, vehicular or electrical, is available, the new unit may be obtained with a seven-day dry pack. Request NP1373.

100-WATT TRANSISTORIZED RADIO—A 100-watt vehicular unit is another product developed by General Electric's Communications Products Department.

The 100-watt mobile radio will be available in low band frequencies, 25 to 50 mc, the company states.

The small size of the unit — 8⅝ inches wide by 15 inches long—permits it to be mounted under the dash in most cars and trucks. The unit is also designed in two sections to facilitate



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mounting in trunks, under seats, and elsewhere in a vehicle.

The company points out that, despite the increase in power, this new equipment draws only 1.75 amperes when "on" and ready to transmit. Standby drain (ready to receive a message) is only 40 milliamper s using a 2-watt speaker, thus enabling a driver to turn his vehicle's engine off and still hear his radio. Request NP1374.

•

PORTABLE STAKE JACKS — Now available for backyard, patio, or other portable use are the new 9 inch (SE 16161) and 39 inch (SE 16171) stake-mounted outdoor jacks, manufactured by Suttle Equipment Corp.

Nine-inch stake mounted outdoor jack.

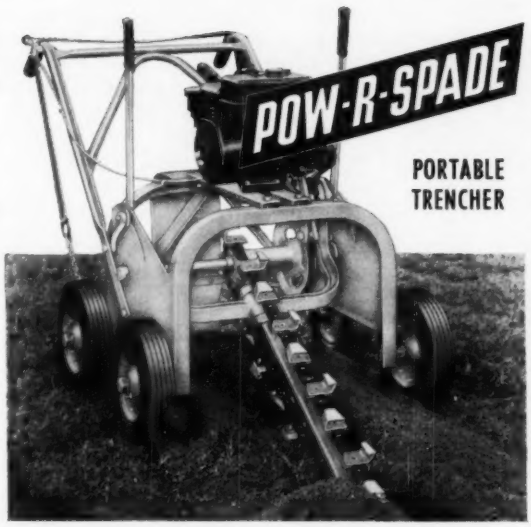
Also available for portable telephone service at public gatherings, the SE 16151 outdoor weatherproof jack is fitted to a 9 inch earth stake, or 39 inch post stake. Request NP1375.

•

BOOTH FINISH COLOR CHARTS— Also available from Suttle is a new color selection chart which shows the DuPont baked enamel finishes available on all steel Suttle telephone booths, both short and full length models. Request NP1376.

•

PRE-BUILT MICROWAVE BUILDING—Tower Construction Co. reports it has developed a factory pre-built



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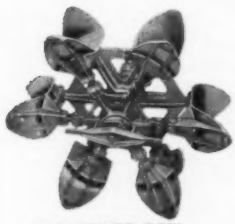
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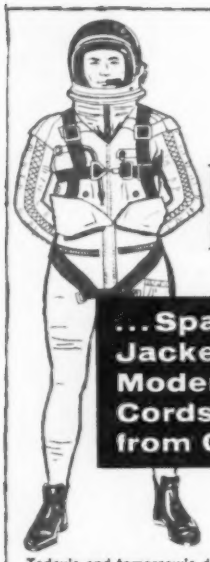

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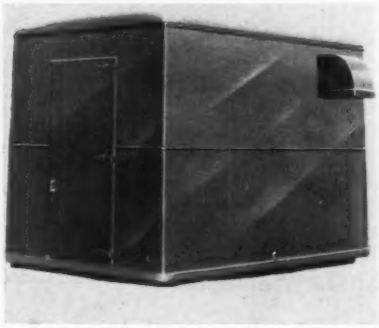
microwave building that offers the advantages of a permanent building plus factory built-in features including such items as wiring and insulation installed prior to shipment.

The Tower factory pre-built, with a tough metal jacket, can be delivered to the site on trucks or delivered by rail. Field installation is said to require minutes rather than days.

Intricate microwave equipment which formerly had to be installed in the field can now be pre-installed at the factory by experts, Tower says. Field tuning is all that's required to make the unit entirely operational.



Since the building was specifically designed for microwave, proper ventilation, tightness, and door seals are all problems that have been eliminated, the company states. The buildings are available in five standard sizes.

When a move is necessary, the building can be lifted from its special piers and transported to the new site, with equipment intact and ready to operate. Request NP1377.

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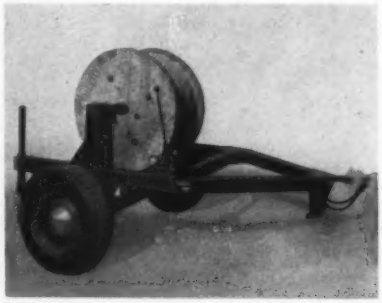
CABLE REEL CARRIER — The Baker Equipment Engineering Co. has developed the Model HWSC light duty hydraulic cable reel carrier.



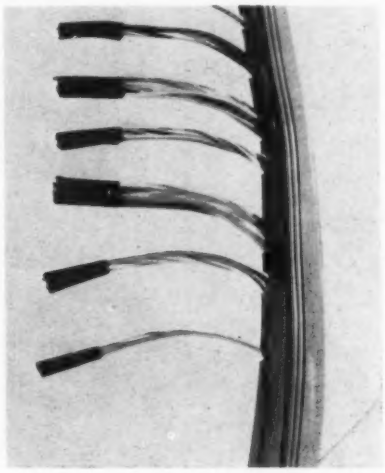
While this model is primarily designed for towing behind a ½, ¾ or 1-ton truck, it can also be towed behind a truck of larger capacity, Baker says.

It is reported to be rated at 2 tons payload capacity and will accommodate reels up to 56 inches in diameter and 42 inches in width. Special order models can accommodate reels up to 55 inches wide. It will pick up reels as small as 18 inches in diameter with carrier level. Approximate weight is 930 pounds without brakes; 1010 pounds with brakes.

It is available in three combinations: (1) for hauling cable reels only (2) a freight carrier, or (3) for hauling cable reels and freight as well as serving as a pole hauling carrier. Request NP1378.

•

TAPERED ZIPPERTUBING—A new tapered Zippertubing that offers a tight fitting cable jacket for cables of decreasing diameters due to branch-outs has been announced by the Zippertubing Co.



Wires can be pulled through perforations of the tapered Zippertubing to permit attachment to termination points, the company says.

One man can apply tapered Zippertubing; no special tools are said to be required. It is supplied according to customers' specifications and can be ordered, according to the company, in colors matching all types of cable jackets. Request NP1379.

British Guiana VHF Radio System Nears Completion

Construction is in the final stages on VHF radio-telephone links being installed in British Guiana.

The system is designed to provide inaccessible parts of the country with an automatic telephone system using VHF radio links where landline runs are impractical over awkward terrain.

From Georgetown, the capital, the system extends 50 miles west along the coast and 100 miles inland. Besides Georgetown, there are 11 other locations in small townships.

IN THE NATION'S CAPITAL

Continued from page 16

ment went to the Senate on June 27, too late to be acted upon before adjournment. It could still be acted upon in the session starting Aug. 8, or a regular appointment could be submitted in January.

Since King's term expires next year, the Democrats, who control the Senate, are unlikely to oppose him. If their party wins the presidency in November, they could give the FCC a Democratic majority by replacing King in July, 1961. If the Republicans win, they will still have to confirm a Republican appointment—whether King or somebody else. Under the law King's recess appointment entitles him to serve until the end of the next session of Congress, unless the Senate votes not to confirm him.

Commissioners Rosel H. Hyde, Robert E. Lee, and Frederick W. Ford—who replaced Doerfer as chairman—also are Republicans. Commissioners Robert T. Bartley, T. A. M. Craven, and John S. Cross are Democrats. No more than four members of the FCC may be members of any one party.

The commission meanwhile took action on a project of its own which may lead to political fireworks. The FCC announced on July 19 that it would reopen its inquiry into television network program selection practices. The hearings will resume at Los Angeles, Cal., on Oct. 5, with James D. Cunningham, chief hearing examiner, in charge.

Mobile Bus Call to London

Years ago the small fry used to tease each other with an old joke which started something like this: "Can you telephone (tell a phone) from a car?" Since that was before mobile telephones were even thought about, the other kid would answer, "No." And that led to the devastating retort, "Well, you would be a mighty stupid person to send to the telephone if you don't know the difference." Very funny!

The eastern passenger bus services, in their effort to capture some of the business which the railroads seem willing to throw away, have put in an improvement that lends a real point to the old joke about telephoning from a car or bus. On July 18, on 14th Street and Constitution Avenue in Washington, D. C., right in front of the Department of Commerce building, there was a pretty girl sitting in a passenger bus making a telephone call (See cover cut). Right after that, the Hon. John J. Allen Jr., Under Secretary of Commerce for Transportation, picked up

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the telephone and said "Hello, Tom," to a friend of his in the United States Embassy in London.

The telephone was in a Trailways bus parked on 14th Street outside of the Commerce Department. It was the first official call made through the new service offered by the company as of now on its luxury buses. Under Secretary Allen put in a plug for the Commerce Department's "Visit U.S.A. Year" program to encourage tourist trade. He chatted for approximately 15 minutes with W. T. M. Beale, economic minister at the London Embassy, about the prospects of getting more tourists from Great Britain. Then he conversed with John Winchell, chairman of the Interstate Commerce Commission, in his office a block away.

After the talks, the telephone in the rear of the bus buzzed with a call from the Trailways dispatcher warning that the bus was due to leave in 15 minutes on its run to New York City. The telephones are available on eight extra-fare buses operating from Washington to New York, Boston, Philadephia, Portsmouth, N. H., and Portland, Me. Later they will be provided on runs to Richmond and Norfolk. The telephone calls are placed by hostesses on the bus either collect or paid for on the spot.

Oregon Tax Discrimination

Every so often critics of public utility regulation try to make a point that public utility companies which would like to have their rates based on the fair value of their properties rather than on an out-of-date original cost are guilty of seeking a double standard of values. Such utility companies, they say, would like to keep a double set of books—one for the cost of property and another for a fictitious value placed upon them for rate-making purposes.

Actually double bookkeeping is nothing new in the utility business and sometimes it is required by law. The latest announcement by the Oregon Tax Commission is a good case in point. Of course, the tax commissioner is only carrying out the law of Oregon as prescribed by the state legislature. It might be observed that utilities in Oregon are not only taxed on value (as distinguished from cost), but they are also admittedly taxed on a higher level than the taxes paid by other property owners, not in the utility business.

The Oregon commissioner announced early in July new ratios which the counties in that state must apply to the "true cash value" in determining the assessed values of utility properties. The commission approved the ratios fixed by each county for assessing other classes of property as well. The Oregon utility tax ratios run 5 per cent above the ratios of other classes of property, following the policy adopted by the Oregon legislature.

But it is interesting to note that the Oregon Public Utility Commissioner follows an original cost base in fixing rates for Oregon utilities just like the regulatory commissions of other western states. So, Oregon utilities are taxed on a fair value basis or "true cash value" of their properties, but their rates are fixed on the basis of a return on original cost less depreciation.

As far as soaking the utilities (as compared with other taxpayers), it is unfair to single out Oregon. Quite a few other states admittedly do the same thing — California, for example. The idea seems to be that since the utilities pass their taxes along in the form of operating expenses, they should pass a little extra along to the local governments, because they are such good tax collectors.

Nevada Convention Change

The Nevada Telephone Association will hold its Sept. 21, 22 and 23 meeting in the Hotel Riviera in Las Vegas instead of in Ely, Nev., as previously announced.

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NEW YORK CONVENTION

Continued from page 22

had received considerable circulation in New York and elsewhere. Mr. Brown concluded that the quote wasn't aimed at the New York Public Service Commission, but had been used by some persons to damage the commission staff's reputation.

Mr. Brown described the commission staff as one with outstanding strength.

"People—Size 'Em Up," Ray Monsalvatge of Dayton, O., titled his talk. It has been found by psychologists, he said, that people have the following basic needs:

Physical — the need for food and sleep; and the need to avoid pain, heat and cold. He pointed out that pain is a blessing when it warns of ulcer, heart trouble, etc.

Emotional—including the need to feel important. If this need is not fulfilled, people retreat into phantasy.

Spiritual — involving, among others, the need to serve. Service can be rendered to others in many ways, including extending sympathy, kindness and money.

Mr. Monsalvatge stated that it is oftentimes within the power of managers and others in business to help their associates satisfy these needs.

Alvin P. Hammel, assistant vice president, New York Telephone Co., discussed "Protection Against Radioactive Fallout in the Telephone Industry." For telephone companies, he recommended the following forward planning:

(1) Acquire and encourage a knowledge and an understanding of the nature of the fallout hazard and of the general principles and procedures for minimizing exposure and injury.

(2) Make a survey of existing telephone buildings to identify protection already in existence for shelter against fallout.

(3) Plan a program of designated fallout shelter areas, making full use of existing protection and increasing it as may be appropriate.

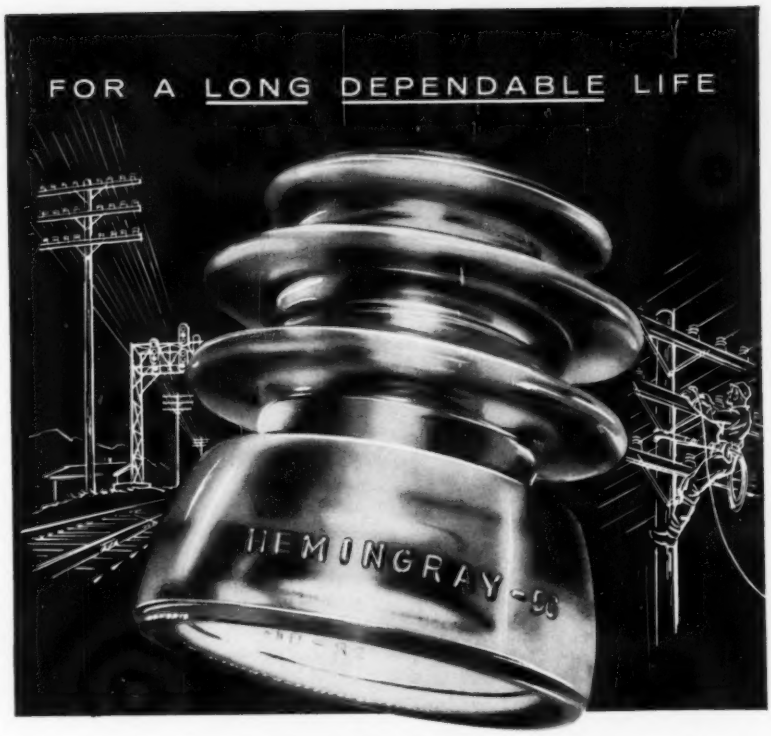
(4) One of the best opportunities for obtaining good fallout protection at little or no extra cost is in the planning and construction of new buildings or building extensions.

By merely rearranging space and facilities, with perhaps a little increase in masonry here and there, very substantial protection may usually be had for a very few dollars.

In this manner, not only can adequately shielded space be created but it can often have convenient to it living facilities that make for something better than bare survival in the event the need comes.

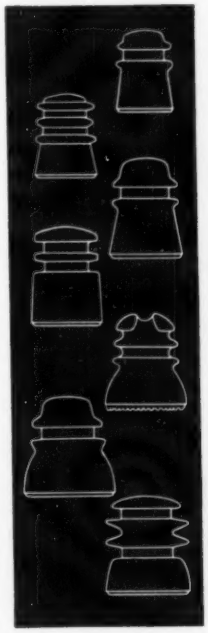
(5) Consider providing the minimum habitability requirements for staying in the shelter spaces for a few days or perhaps as long as two weeks under the worst conditions.

The basic necessities are adequate



NUMBER 56 - *Double-Groove Transposition. These insulators are employed for all circuits (exchange, toll or trunk) that employ tandem-type transpositions.*

HEMINGRAY INSULATORS



Easily and Economically Installed

Hemingray Glass Insulators stand up under severe conditions, do not deteriorate, provide the service you need to assure continuous operation of communication lines. The dependability of Hemingray Insulators as proved by their years of sturdy performance is one of the reasons behind their world-wide acceptance.

Hemingray has pioneered many insulator developments to keep pace with requirements, improve communication systems, assure you a dependable source of supply.

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Hemingray Glass Insulators are a product of Kimble Glass Company, subsidiary of Owens-Illinois, Toledo 1, Ohio.

There's a Hemingray Insulator to meet every communication line requirement.

World standard for quality Since 1870

HEMINGRAY INSULATORS
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ventilation or air supply, water, emergency food supplies, simple radiation measuring instruments, a radio and some type of sanitation facilities.

It is advisable to give consideration also to rescue equipment, first aid supplies, and simple sleeping facilities and furnishings.

(6) Work out plans of action for survival of personnel and recovery of service in event of attack.

In the difficult period of recovery, it is certain that restoration of communications would be vital to progress in re-establishing the necessities of life in the community.

Rev. Colin F. Miller, dean of the college chapel, Hamilton College, Clinton, N. Y., in the closing address, observed: "The idea of a nuclear war is chilling in the extreme. What a weight of broken-heartedness, mourning and bitterness would be the survivors' lot."

Reverend Miller asked: What has produced this situation in which it's possible that one in every two of us could be killed within the hour. He answered: "We say the Russians. They say the U. S.

"The nations of the world are awfully at sea—defending themselves and a kind of life they don't really believe in. What has happened to man?"

The dehumanizing of man is one cause, Reverend Miller stated, the splitting of him into a number of parts—artistic, economic, scientific and religious. He went on:

"Our lives are too much dominated by non-moral considerations. Man was created to ask the question: 'What is right?'. . .

"Man is dying today of boredom—hell has been defined as a place of absolute boredom because there are no moral decisions to be made.

"Only when man begins to say in all parts of his life, 'What is right?' will he regain a sense of worth to his life."

Reverend Miller said, "The United States has nothing else to offer the world except morality and God. We must stand for what we essentially are —God is our life and master, and He would have us ask, 'What is right?' "

During the convention, Spencer B. Eddy, former commissioner, deputy chairman and acting chairman of the New York Public Service Commission, was named an honorary member of the New York State Telephone Association.

Directors re-elected by the convention for one-year terms:
Frank D. Fancher of Middletown.
William A. Kern of Rochester.
William A. Seely of Norwich.
Albert N. Seward of Jamestown.

Elected for one-year term:
Marshall K. Taylor of Johnstown.

Re-elected for two-year term:
George S. Beckwith of Keeseville.
Fred S. Florance of Monroe.

Elected for two-year term:
Donald F. Davison of Spencerport.

Appointed to fill unexpired year to replace Robert Maytum, who resigned, was Roderick A. Nixon of Westfield.

Carry-overs — with one year yet to serve:
Sheldon A. Birdsall of Margaretville.
C. Ray Lloyd of Manlius.

The directors elected these officers: President, Mr. Beckwith; vice president, Mr. Lloyd; treasurer, W. Malcolm Griswold of Phelps, and secretary-assistant treasurer, Mr. Davison. Hamilton A. Cunningham of Albany is executive secretary.

B. L. Steele Is Director Personnel, GT&E Serv. Corp.

Bert L. Steele has been appointed director of personnel for the GT&E Service Corp., according to Thomas A. Boyd, executive vice president-administration of General Telephone & Electronics Corp.

B. L. STEELE

Formerly personnel administrator for GT&E Service Corp., Mr. Steele replaces Marshall K. Taylor, who was recently elected president of the General Telephone Co. of Upstate New York, Inc., Johnstown.

Mr. Steele, who was born in Erie, Pa., graduated from the University of Pennsylvania with a B.A. degree, majoring in industrial psychology and personnel management.

He joined the General System in 1949 as personnel assistant for the General Telephone Co. of Pennsylvania. In 1953 he was named director of personnel for that company, and in 1957 he was transferred to the New York headquarters offices of the General System as personnel administrator.

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GALVANIZED STEEL CASE ASSEMBLIES
FOR AERIAL (POLE MOUNTING).
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CEECO loading coils are sold by your telephone equipment supplier.

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Continued from page 19

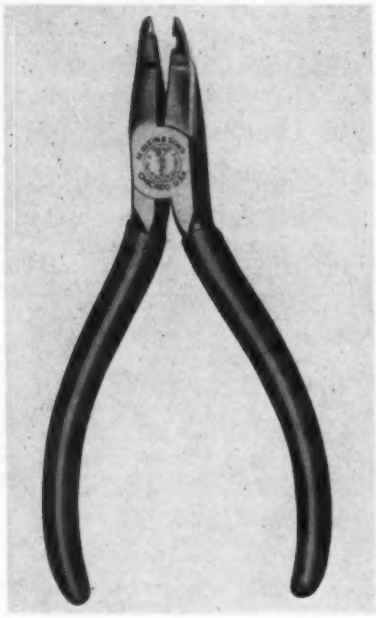

Fig. 134. Special skinning plier.

to permit access to confined space. It is furnished with standard red plastisol handles.

•

Wire Gripper Oblique Cutter. (Fig. 135). The electronics industry has need for pliers designed to meet numerous special requirements. This Klein plier is similar to the conventional oblique cutting plier, but is equipped with steel springs placed between the jaws to hold the clipped end of wire. It is also furnished with a coil spring to hold the handles open.

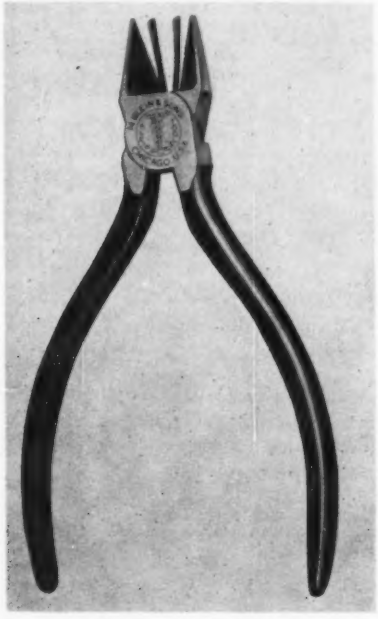

Fig. 135. Wire gripping oblique cutter.

Wingert Elected to Pacific T&T Vice President's Post

Lowell F. Wingert will become a vice president of Pacific Telephone & Telegraph Co., effective Aug. 15. His election to this position by the company's board of directors was announced by company president Carl O. Lindeman.

Mr. Wingert will be responsible for operations of the company in California and Nevada. He will succeed Glen Ireland who is due to retire on Sept. 30.

Mr. Wingert has been most recently a vice president of the Mountain States Telephone & Telegraph Co.

H. F. Clark Director, REA Western Area Telephone

The appointment of Harold F. Clark as director of REA's Western Area Telephone was announced on July 12 by REA Administrator David A. Hamil.

H. F. CLARK

In his new position, Mr. Clark is responsible for activities with REA telephone borrowers in Alaska, California, Colorado, Hawaii, Idaho, Kansas, Montana, Nebraska, Nevada, Oregon, Utah, Washington, and Wyoming.

He had been assistant director of the Western Area in REA's telephone loan program since Aug. 17, 1959.

Mr. Clark joined the REA staff in 1937 as a field representative.

He first worked with REA electrifi-

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EVANS Sagwatch measures wire sag

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This newly patented Swiss-movement instrument measures sag in feet and inches to within 1% of accuracy. Applicable to any wire, regardless of span, tension or type and size of conductor, this precision watch has a logarithmic dial that measures sag by timing the fifth return of a mechanical wave. Fully Guaranteed.

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cation borrowers in various parts of the country.

Later, he was in charge of loans work with REA electric borrowers in the western states.

In 1950, he transferred to the REA telephone program and served as a section head in the old Telephone Operations & Loans Division.

Mr. Clark succeeds William W. Newman Jr., who resigned as director of the Western Area-Telephone, to accept employment in the Federal Government's missile program.

Northeastern Company Tells Iowa Personnel Changes

Two personnel changes in the Eastern Iowa Telephone Corp., Independence, and in the Appanoose County Telephone Co., Centerville, Ia., have been announced recently. William E. Odom, who was general manager for the Eastern Iowa company, was transferred to the staff of the general plant manager, R. E. Hornacek.

Mr. Odom's duties have been assumed in the Eastern Iowa company by Walter Hambleton, who is also general manager of the Appanoose County Telephone Co., and of the Appanoose County Rural Telephone Co., both headquartered at Centerville.

Mr. Odom will work on special assignments for a group of associated companies in Kentucky, Illinois and Iowa, and will continue as central office superintendent for the Iowa properties.

He went to the Northern Illinois Telephone Co., Lanark, in 1957 as central office supervisor.

Later, Mr. Odom transferred to Iowa and became manager of the Eastern Iowa Telephone Corp. He subsequently assumed the duties of central office and commercial office manager for the Appanoose County Telephone Co.

Mr. Hambleton, Mr. Odom's successor at Eastern Iowa, was transferred to the Appanoose County company's Centerville headquarters more than a year ago.

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Piedmont Wood Preserving Company—Creosoted and Creosote-Penta Treated Pine Poles. Plant, Augusta, Georgia. Yards, Virginia, West Virginia and Connecticut. Address inquiries to Box 1662, Spartanburg, S. C.

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26 Pair, #19 Ga., As Above (800 & 500 Ft. Lengths)	14,000 Ft.
51 Pair, #19 Ga., As Above	2,000 Ft.

OTHER CABLE

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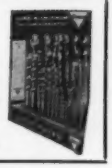

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Index to ADVERTISERS

	Page
Acme Electric Corporation	—
Acme Visible Records, Inc.	—
Airtronics International Corp.	2
Alphaduct Wire & Cable Co., The	45
Altec Lansing Corp.	—
Aluminum Company of America	—
Amchem Products, Inc.	—
American Electrical Heater Co.	—
American Steel & Wire Co.	—
American Telephone & Telegraph Co.	—
Anaconda Wire & Cable Co.	—
Andrew Corporation	—
Ansonia Wire & Cable Co., The	—
Arps Corporation	—
Atlantic Creosoting Co., The	50
Atlas Safety Equip. Co., Inc.	52, 53
Automatic Electric Sales Corp.	28-29
Avnet Electronics Corp.	—
Baker Wood Division	—
Barber Advertising Specialties, Walt	46
Bartlett Tree Experts	—
Bell Telephone Laboratories, Inc.	—
Benner-Nawman, Inc.	—
Berry & Co., L. M.	—
Bethlehem Steel Co.	—
Biddle Co., James G.	—
Bishop Manufacturing Corp.	—
Bohnsack Equipment Co.	53
Brand, Wm.—Rex Div.	—
Brown Mfg. Co.	—
Brown Wood Preserving Co.	—
Buckeye Telephone & Supply Co.	52
Buchart Associates	—
Budelman Electronics Corporation	—
Burgess-Manning Company	—
Burroughs Corp.	3
Butler Manufacturing Co.	—
B. Y. Dial Service	—
C&D Batteries, Inc.	—
Cabaniss-Pogue Co.	50
Cable Construction Co.	50
Cable Spinning Equipment Co.	—
Calculagraph Company	—
Chance Co., A. B.	—
Charles Machine Works, Inc.	—
Cleveland Inst. of Electronics	27
Clifton Appraisal Co.	—
Collins Radio Co.	41
Colorado Fuel & Iron Co., The	—
Commercial Cord Company, Inc.	44
Communication Equipment & Engineering Co.	48
Comptometer Corporation	—
Cook Electric Company	—
Cooperweld Steel Co.	—
Crane, Inc., Carl C.	50
Cushman Motor Works, Inc.	—
Dahl Co., Inc., George W.	—
Danish Import	53
Davis Construction Co.	—
Davis Manufacturing Co.	—
Dial Haven, Inc.	53
Diamond Expansion Bolt Co.	—
Dillon & Co., Inc., W. C.	—
Donnelley & Sons, R. R.	42
Duo-Safety Ladder Corp.	—
E. & C. Contracting Co.	50
Everstick Anchor Co.	—
Exide Industrial Division—The Electric Storage Battery Co.	—
Fitchburg Engineering Corporation	—
Floor-Con	—
Fodness and Associates	—
Foley Construction Co., Robert E.	50
Ford Co., T. A.	—
Ford Motor Company, The	—
Gagne Enterprises, Inc.	—
General Cable Corporation	—
General Electric	—
General Insulated Wire Works	—
General Machine Products Co., Inc.	43
General Telephone Directory Co.	Back Cover
Gladwin Plastics, Inc.	—
Gould-National Batteries, Inc.	—
Graybar Electric Co.	—
Haley & Co., R. G.	49
Hallamore Electronics Co.	46
Harris-McBurney Company	—
Hayes Aircraft Corporation	—
Henkels & McCoy	53
Highway Trailer Company	—
Hirsch Organization, Inc., Gustav	—
Hitachi Ltd.	11
Holan Corp.	—
Hollandsworth, F. M.	—
Indiana Steel & Wire Co.	—
International Teletronics	—
Irwin-Auger Bit Co.	—
Johns-Manville	—
Kearney Co., Jas. R.	—
Kellogg Siwtchboard & Supply Co.	12-13
Kennecott Wire & Cable Div.	10
Keystone Steel & Wire Co.	—
Killoren Company	—
Kirk Dial and Crystal Co.	49
Klein & Sons, Mathias	40
Kohler Co.	—
Koiled Kords, Inc.	—
Koppers Co., Inc. Wood Preserving Div.	—
Leich Sales Corporation	4-5
Lenkurt Electric Co., Inc.	10
Lindsay Telephone Supply Co.	—
Line Equipment Sales	53
Lorain Products Corp., The	9
Magnolia Chemical Co., Inc.	—
McCabe-Powers Body Company	—
McGrath Engineering, Inc.	50
Minnesota Mining & Manufacturing Co.	—
Monsanto Chemical Co.	—
Organic Chemical Div.	55
Plastics Div.	—
Morrison-Pelsue Co.	—
Murphy Engineering Laboratories	50
Natco Corporation	—
National Pole & Treating Div.	—
National Standard Co.	—
National Telephone Supply Co.	—
Neubauer Mfg. Co.	—
Neuses, Inc., P. K.	53
North Electric Company	6-7
Okonite Company, The	10
Onan & Sons, D. W.	—
Orangeburg Manufacturing Co., Inc. Div. of The Flintkote Co.	—
Osmose Wood Preserving Co.	—
Owens-Illinois	47
Page & Hill, Inc.	—
Panhandle Electric Sales, Inc.	—
Penta Wood Products, Inc.	50
Phelps Dodge Copper Products Corp.	—
Philco Corporation Gov't & Industrial Div.	—
Plastic Wire & Cable Corp.	—
Plastimayd Corporation	—
Porter, Inc., H. K.	—
Power Unit Sales Co.	—
Precision Multiple Controls	—
Preformed Line Products Co.	—
Puregas Equipment Corp.	—
Radio Frequency Labs, Inc.	—
Railway Communications, Inc.	—
Ramset Fastening System	—
Rawlplug Company, Inc.	—
Raytheon Company, Equipment Div.	—
Recordak Corp.	—
Reichhold Chemicals, Inc.	—
Reliable Electric Company	—
Remington Rand Div.	—
Republic Creosoting Company	—
Reynolds Metals Company	—
Rohn Manufacturing Co.	—
Rolatape, Inc.	—
S & G Manufacturing Co.	—
Schauer Mfg. Co.	—
Semco Sales & Service, Inc.	—
Seymour Smith & Son	—
Sherron Metallic Corp.	—
Sierra Electronics Corp.	—
Sloan, Cook & Lowe Co.	50
Stainless, Inc.	—
Stampings, Inc.	43
Sterile Telephone Corp.	46
Stewart Bros.	—
Stromberg-Carlson	37, 38
Studebaker Packard Corporation	—
Superior Cable Corporation	—
Suttle Equipment Corporation	39
Tanner Co., O. C.	—
Taylor-Colquitt Co., The	—
Telectric Co.	51
T.E.I. Corp.	50
Tele-Wire Supply Co., Inc.	—
Tele-Muff Co.	—
Teletype Corporation	—
Templeton, Kenly & Co.	—
Thornhill Publishing Co.	—
Transandean Associates, Inc.	—
Truck Equipment Company	—
Tudor & Yager, Inc.	50
Union Carbide Plastics Company	—
United Electric Controls Co.	—
U. S. Cable Constructors, Inc.	—
United States Instrument Corp.	—
United States Motors Corp.	—
United States Steel Corp. American Steel & Wire Co.	—
Universal Controls Corp.	—
Utilities Contracting Co.	50
Utility Equipment Co.	—
Utility Service Co., Inc.	—
Utility Tool & Body Co.	—
Warren Mfg. Co., The	14
Weikel Line Company	52
Western Electric Co.	—
Whitney-Blake Co.	—
Williams Inspection Co., Inc., A. W.	50
Winders & Geist, Inc.	—
Wiremold Co., The	—
Wyoming Valley Equipment Div.	—
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